Products for Export and Domestic Movement

	September				October				November					December			
	23	30	6	13	20	27	4	11	18	25	1	8	15	22	29	6	13	20	27
	.06¼	.06¼	.06	.06	.06	.06	.06	.05⅞	.05¾	.05¾	.05¾	.05¾	.05¾	.05¾	.05¾	.05¾	.05⅝	.05⅝	.05⅝
	.06⅛	.06⅛	.06	.06	.06	.06	.05⅞	.05¾	.05¾	.05¾	.05¾	.05¾	.05¾	.05¾	.05¾	.05¾	.05⅝	.05⅝	.05⅝
	.06¼	.06¼	.06	.06	.06⅛	.06⅛	.05⅞	.05¾	.05¾	.06	.06	.06	.06	.06	.06	.06	.05⅞	.05¾	.05¾
	.06⅜	.06⅜	.06¼	.06½	.06⅜	.06⅜	.06½	.06½	.06½	.06½	.06½	.06½	.06½	.06½	.06½	.06½	.06⅜	.06⅜	.06⅜
	.07⅛	.07	.06⅜	.06¾	.06⅞	.06¾	.07	.07	.06¾	.06¾	.06¾	.06¾	.06¾	.06¾	.06¾	.06¾	.06⅝	.06⅞	.06⅞
			.06¾		.07	.07	.07¼	.07¼	.07⅛	.07⅛	.07⅛	.07⅛	.07⅛	.07⅛	.07⅛	.07⅛	.07⅛	.07⅛	.07⅛
	.06½	.06⅛	.06¼	.06¼	.06⅜	.06⅜	.06¼	.06¼	.06¼	.06¼	.06¼	.06¼	.06¼	.06¼	.06¼	.06¼	.06⅜	.06⅛	.06⅛
	.06⅛	.06	.05⅞	.05⅞	.06	.06	.06	.05⅞	.05⅞	.06	.06	.06	.06	.06	.06	.06	.05¾	.05¾	.05¾
	.06½	.06⅛	.06¼	.06⅝	.06⅝	.06⅝	.07	.07	.06⅝	.06⅝	.06⅝	.06⅝	.06⅝	.06⅝	.06⅝	.06⅝	.06½	.06½	.06½
	.06½	.06¼	.06¼	.06¼	.06⅜	.06⅜	.06½	.06½	.06¼	.06½	.06½	.06½	.06½	.06½	.06½	.06½	.06½	.06½	.06½
	.08	.08⅛	.08	.07¾	.07¾	.07¾	.08	.07⅞	.07⅝	.07⅝	.07⅞	.07⅞	.07⅞	.07⅞	.07⅞	.07¾	.07¾	.07¾	.07¾
	.08½	.08⅛	.08¼	.08	.08	.08	.08	.08	.08	.08	.08	.08	.07¾	.07¾	.08	.08	.08	.08	.08
	.09	.09	.08¾	.08¾	.08¾	.08¾	.08¾	.08¾	.08¼	.08½	.08¼	.08¼	.08¼	.08¼	.08¼	.08¾	.08¾	.08¾	.08¾
	.09½	.09⅛	.09½	.08⅞	.09½	.09½	.09½	.09½	.09¼	.09¼	.09¼	.09¼	.08¾	.09¼	.09¼	.09¼	.09¼	.09¼	.09¼
	.09	.09	.08¾	.08¾	.08½	.08½	.08½	.08½	.08½	.08	.08	.08	.08	.08	.08	.08½	.10	.10	.09
	.06	.06	.05¾	.05½	.06	.06	.06	.06	.06⅛	.06	.06	.05⅞	.05¾	.05¾	.05¾	.05½	.50¾	.05⅛	.05¼
	.06	.06	.05¾	.05½	.06	.06	.06	.06	.06	.06	.06	.05⅞	.05¾	.05½	.05½	.05⅝	.05⅞	.04⅞	.04⅝
	.05⅝	.05⅝	.05½	.05¼	.05⅝	.05⅝	.05½	.05½	.05⅝	.05⅜	.05⅜	.05¾	.05¼	.05¼	.05¼	.04¾	.04¼	.04⅛	.04¼
	.05	.05	.05⅜	.05¼	.05⅝	.05½	.05½	.05½	.05⅝	.05⅜	.05⅜	.05⅜	.05¼	.05¼	.05¼	.04¾	.04¼	.04⅛	.04¼
																.04½	.04	.04⅛	.04
	.06	.06	.05¾	.05½	.06	.06	.06	.06	.06⅛	.06	.06	.05⅞	.05¾	.05¾	.05¾	.05½	.05⅝	.05⅛	.05¼
	.05¼	.05⅜	.05½	.05¼	.05⅝	.05½	.05½	.05⅝	.05⅜	.05¼	.05¾	.05¾	.05½	.05¼	.05¼	.04¾	.04¼	.04⅛	.04¼
	.05	.05¼	.05⅜	.05	.05⅝	.05⅜	.05½	.05½	.05½	.05½	.05½	.05½	.05½	.05	.05	.04½	.04	.03⅞	.03½
	.08½	.08¼	.07½	.07½	.07	.07	.08½	.08½	.08½	.09	.09	.09	.09	.09	.09	.08½	.08½	.08½	.08½
	.04	.04	.04	.04⅛	.04¼	.04¼	.04½	.04½	.04⅝	.04⅝	.04⅝	.04⅝	.04½	.04½	.04½	.04⅜	.04⅜	.04¼	.04¼
	.04⅜	.04⅜	.04⅜	.04⅜	.04⅜	.04⅜	.04¾	.04¾	.04⅞	.05	.05	.05	.05	.05	.05	.05	.05	.04¾	.04¾
	.04¼	.04¼	.04¼	.04⅝	.04⅝	.04⅝	.04½	.04½	.04¾	.04¾	.04¾	.04¾	.04¾	.04¾	.04¾	.04¾	.04⅝	.04½	.04½
	.03⅝	.03⅝	.03⅞	.04	.04¼	.04¼	.04½	.04½	.04¾	.04⅝	.04⅝	.04⅝	.04⅝	.04½	.04½	.04½	.04⅜	.04¼	.04¼
	.05½	.05⅝	.05⅝	.05⅝	.05⅝	.06	.06	.06⅛	.06¼	.06¼	.06½	.06¼	.06¼	.06¼	.06⅜	.06⅜	.06⅛	.06⅛	.06⅛
	.05¾	.05¾	.05¾	.05¾	.06	.06¼	.06	.06⅜	.06⅜	.06⅜	.06⅝	.06⅛	.06⅜	.06½	.06½	.06½	.06¼	.06¼	.06¼
	.05	.05	.05	.05	.05	.05	.05	.05	.05¼	.05¼	.05¼	.05½	.05½	.05½	.05½	.05½	.05½	.05½	.05½
	.08	.08	.08	.08	.08	.08	.05½	.07⅛	.07¼	.07¼	.07¼	.07	.07	.07	.07	.06¾	.07	.07	.07
	.07¾	.07¾	.07¾	.07¾	.07¾	.07¾	.07	.07	.07	.07	.07	.06¾	.06¾	.06¾	.06¾	.06¾	.06¾	.06¾	.06¾
	.77½	.77½	.77½	.77½	.75	.75	.72½	.72½	.72½	.72½	.72½	.72½	.72½	.70	.70	.70	.70	.70	.70
	.82½	.82½	.82½	.82½	.82½	.82½	.82½	.82½	.82½	.82½	.82½	.82½	.82½	.82½	.82½	.82½	.80	.80	.80
	.02½	.02½	.02½	.02⅝	.02⅝	.02⅝	.02⅝	.02⅝	.02⅝	.02⅝	.02⅝	.02⅝	.02⅝	.02⅛	.02⅛	.02⅛	.02⅜	.02⅜	.02⅜
	.03⅛	.03⅛	.03⅛	.03⅛	.03⅛	.03⅛	.03⅛	.03⅛	.03⅛	.03⅛	.03⅛	.03⅛	.03⅛	.03⅛	.03⅛	.03⅛	.03⅛	.03⅛	.03
	.85	.87½	.87½	.87½	.85	.85	.85	.85	.85	.85	.85	.82½	.82½	.80	.80	.80	.80	.80	.80
	.80	.80	.80	.80	.80	.80	.80	.80	.80	.80	.80	.80	.80	.80	.80	.80	.75	.75	.75
	.02¾	.02¼	.02¼	.02¼	.02¼	.02¼	.02¼	.02¼	.02¼	.02¼	.02¼	.02¼	.02¼	.02¼	.02¼	.02¼	.02¼	.02¼	.02¼
	.03	.03	.03	.03	.03	.03	.03	.03	.03	.03	.03	.03	.03	.03	.03	.03	.03	.03	.03
	1.12½	1.12½	1.12½	1.10	1.10	1.10	1.07½	1.07½	1.05	1.05	1.05	1.00	.95	.90	1.00	1.00	1.00	1.00	1.00
	1.60	1.60	1.60	1.60	1.60	1.60	1.60	1.60	1.60	1.55	1.45	1.35	1.30	1.25	1.25	1.25	1.25	1.25	1.25
	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.037⅛	.037⅛	.031⅛	.031⅛	.037⅛	.037⅛	.037⅛	.037⅛
	.03¾	.03¾	.03¾	.03¾	.03¾	.03¾	.04¼	.04⅜	.04⅜	.04¼	.04¼	.04¼	.04¼	.04¼	.04¼	.04¼	.04¼	.04¼	.04¼
	.04	.04	.04	.04	.04½	.04½	.04⅜	.04⅜	.04⅜	.04⅜	.04⅜	.04⅜	.04⅜	.04⅜	.04⅜	.04⅜	.04⅜	.04⅜	.04⅜
	.03¼	.03¼	.03¼	.03¼	.03¼	.03¼	.03¼	.03¼	.03¼	.02¾	.02¾	.02¾	.02¾	.02¾	.02¾	.02¾	.02¼	.02¼	.02¼
	.85	.85	.85	.85	.85	.85	.85	.85	.85	.85	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
	1.15	1.15	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15
			1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15									
	.06¼	.06	.06	.06	.06	.06	.06	.06	.06	.06	.06	.06	.06	.06	.06	.06	.06	.06	.06
	.10	.09¾	.09¾	.09¾	.09¾	.09¾	.09¾	.09¾	.09¾	.09¾	.09¾	.09¾	.09¾	.09¾	.09¾	.09¾	.09¾	.09¾	.09¾
	.10½	.10	.10	.10	.10	.10	.10	.10	.10	.10	.10	.09¾	.09½	.09½	.09½	.09½	.09½	.09½	.09½
	.09½	.09¼	.09¼	.09¼	.09¼	.09¼	.09¼	.09¼	.09¼	.09¼	.09¼	.09¼	.09¼	.09¼	.09¼	.09¼	.09¼	.09¼	.09¼
	.10½	.10¼	.10¼	.10¼	.10¼	.10¼	.10¼	.10¼	.10¼	.10¼	.10¼	.10¼	.10¼	.10¼	.10¼	.10¼	.10¼	.10¼	.10¼
	.12½	.12¼	.12¼	.12¼	.12¼	.12¼	.12¼	.12¼	.12¼	.12¼	.12¼	.12¼	.12¼	.12¼	.12¼	.12¼	.12¼	.12¼	.12¼
	.31	.31	.31	.31	.31	.31	.31	.31	.31	.31	.31	.31	.30	.30	.30	.30	.30	.30	.30
	.07	.07	.07	.07	.07	.07	.07	.07	.07	.07	.07	.07	.07	.08	.08	.08	.08	.08	.08
	.02⅜	.02⅜	.02⅜	.02⅜	.02⅜	.02¾	.02¾	.02¾	.02¾	.02¾	.02¾	.02¾	.02⅝	.02⅝	.02⅝	.02⅝	.02½	.02½	.02½
	.17½	.15	.15	.15	.15	.15	.17	.17	.17	.17	.17	.17	.17	.15	.15	.15	.15	.15	.15
	.33	.33	.33½	.33½	.33	.33	.32¼	.31½	.31½	.32½	.30½	.29	.29	.29	.28	.28	.28	.28	.28
	.09	.09	.09	.09	.09½	.09½	.09½	.09½	.09½	.09½	.09½	.09½	.08½	.08½	.08½	.08½	.08¾	.08¾	.08¾
	.07¼	.07¼	.07¼	.07¼	.08	.08	.08	.08	.08	.08	.08	.08	.07	.07	.07½	.07½	.07½	.07½	.07½
	.11	.11	.10	.10	.10	.10	.10	.10	.10	.10	.10	.10	.10	.10	.10	.10*	.10	.10	.10
	.09½	.09½	.08½	.08½	.08½	.08½	.08½	.08½	.08½	.08½	.08½	.08½	.08½	.08½	.08½	.08½	.08½	.08½	.08½
	.08¼	.08¼	.08¼	.08¼	.08¼	.08¼	.08¼	.08¼	.08¼	.08	.08	.08	.08	.08¼	.08¼	.08¼	.08¼	.08½	.08¼
	.06½	.06½	.06½	.06½	.06½	.07½	.07½	.07½	.07½	.07½	.07½	.07½	.07½	.07½	.07½	.07½	.07½	.07½	.07½
	.05½	.05½	.05½	.05½	.05½	.05½	.05½	.05½	.05½	.05½	.05½	.05½	.05½	.05½	.05½	.05½	.05½	.05½	.05½
12	2.10	2.10	2.10	2.10	2.10	2.10	2.10	2.10	2.10	2.10	2.10	2.10	2.10	2.10	2.10	2.10	2.10	2.10	2.10
	1.65	1.65	1.65	1.65	1.65	1.65	1.55	1.55	1.55	1.45	1.45	1.45	1.45	1.40	1.40	1.35	1.35	1.35	1.35
	.07¼	.07¼	.07¼	.07¼	.07¼	.07¼	.07¼	.07¼	.07¼	.07¼	.07½	.07½	.07¼	.07¼	.07¼	.07½	.07	.07	.07
	.11½	.11½	.11½	.11½	.11½	.11½	.10½	.10½	.10½	.10½	.10½	.10½	.10½	.10½	.10½	.10½	.10½	.10½	.10½
	.03⅞	.03⅞	.03⅞	.03⅞	.03⅞	.04	.04	.04	.04	.04	.03⅞	.03⅞	.03⅞	.03⅞	.03⅞	.03⅞	.03⅞	.03⅞	.03⅞
	.03¼	.03¼	.03¼	.03⅜	.03⅜	.03⅜	.03⅜	.03⅜	.03⅜	.03⅜	.03⅜	.03⅜	.03⅜	.03⅜	.03⅜	.03⅜	.03⅜	.03⅜	.03⅜
	.2440	.2440	.2440	.2440	.2440	.2440	.2440	.2440	.2440	.2440	.2440	.2390	.2390	.2390	.2390	.2390	.2390	.2390	.2390
	.1615	.1615	.1615	.1615	.1615	.1615	.1715	.1715	.1715	.1715	.1715	.1715	.1715	.1715	.1715	.1715	.1715	.1715	.1715
	.1715	.1715	.1715	.1715	.1715	.1715	.1815	.1815	.1815	.1815	.1815	.1815	.1815	.1815	.1815	.1815	.1815	.1815	.1815
	.17	.17	.17	.16½	.16½	.17	.16½	.16½	.17	.16½	.16½	.17	.17	.17	.17	.17	.17	.17	.17
	.42	.42	.42	.43	.43	.43	.43	.43	.43	.43	.43	.40	.40	.40	.40	.40	.40	.40	.40
	.40	.40	.40	.41	.41	.41	.41	.41	.38	.41	.41	.38	.38	.38	.38	.38	.38	.38	.38
	.04½	.04½	.04½	.04½	.04	.04	.04¼	.04¼	.04¼	.03¾	.04¼	.04¼	.04½	.04½	.04½	.04½	.04½	.04½	.04½
	.06	.06	.06	.06	.06¼	.06¼	.06	.06	.06	.06¼	.06	.06	.05¾	.06	.06	.06	.06	.06	.06

Average Prices for the Years 1927, 1926 and 1925

AVERAGE AND HIGH AND LOW PRICES FOR REFINED PRODUCTS, BASED ON LOW WEEKLY QUOTATIONS OF THE OIL AND GAS JOURNAL

(Prices Given in Cents per Gallon Unless Otherwise Noted)

	1927			Average Price 1st. 6 Mo.	Average Price 2nd. 6 Mo.	1926					1925				
	Av. Pr. for Yr.	High	Low			Av. Pr. for Yr.	High	Low	Average Price 1st. 6 Mo.	Average Price 2nd. 6 Mo.	Av. Pr. for Yr.	High	Low	Average Price 1st. 6 Mo.	Average Price 2nd. 6 Mo.
GASOLINE AND NAPHTHA															
Oklahoma (Group 3):															
50-52 450 endpoint	.0655	.09	.0562	.0709	.0601	.0985	1125	.085	.0982	.0988	.0977	.125	.0725	.1034	.0915
56-58 450 endpoint	.0649	.0875	.0562	.0689	.0599	.0994	.1175	.0825	.1012	.0975	.1012	.13	.075	.1069	.0954
58-60 437 endpoint (U. S. Motor)	.0667	.09	.0575	.0722	.0613	.1031	.12	.0875	.1033	.1009	.1055	.1375	.0775	.1107	.1002
60-62 400 endpoint	.0721	.10	.0625	.0781	.0661	.1122	.1225	.10	.1159	.1085	.1176	.1475	.09	.1248	.1153
64-66 375 endpoint	.0757	.1062	.065	.0826	.0688	.1176	.13	.105	.1229	.1124	.1310	.16	.11	.1371	.1253
68-70 360 endpoint	.0799	.1125	.0675	.0881	.0717	.124	.135	.1125	.1301	.1179	.1384	.1625	.1125	.1416	.1352
Kansas:															
58-60 437 endpoint (U. S. Motor)	.0698	.095	.0625	.0751	.0644	.1068	.125	.09	.1088	.1048	.1075	.135	.08	.1139	.1028
North Texas:															
58-60 437 endpoint (U. S. Motor)	.0604	.09	.0575	.0720	.0588	.1024	.1187	.0862	.1046	.1001	.1056	.135	.08	.1111	.1000
64-66 390 endpoint	.0737	.1037	.0625	.0804	.0670	.1155	.13	.1012	.1215	.1095	.1289	.1525	.10	.135	.1227
North Louisiana:															
56-58 437 endpoint (U. S. Motor)	.0698	.09	.0625	.0739	.0657	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Pennsylvania:															
52 Naphtha	.0875	.115	.0737	.0968	.0782	.1175	.135	.1125	1185	.1205	.1276	.145	.1075	.1323	.1217
58 Gasoline	.0900	.115	.0775	.0986	.0814	.1273	.145	.115	.1295	.1252	.1348	.1575	.1075	139	.1271
60 Gasoline	.0974	.125	.0825	.1063	.0885	.1339	.1475	.125	.1365	.1313	.1482	.1625	12	.1465	.1499
64 Gasoline	.1051	.1325	.0925	.1147	.0954	.1437	.1525	.1325	.146	.1413	.1584	.1725	.145	.1584	.1584
California:															
58-6. 437 endpoint (U. S. Motor)	.0873	.105	.08	.0863	.0883	.1131	.125	.09	.1192	.1077	.1017	.11	.09	.1057	.0977
NATURAL GASOLINE—															
Oklahoma (Group 3):															
Grade A, 72-79.9, 375 endpoint, rec. 90%	.0585	.095	.045	.0612	.0558	.0945	.1062	.0825	.0963	.0927	.1202	.155	.09	.1154	.1246
Grade AA, 80-87.9, 375 endpoint, rec. 90%	.0575	.095	.045	.06	.0549	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Grade B, 76-83.9, 375 endpoint, rec. 85%	.0544	.085	.0412	.0575	.0512	.0887	.105	.0787	.089	.0885	.1158	.155	.08	.1102	.1215
Grade BB, 84-92, 375 endpoint, rec. 85%	.0543	.085	.04	.0575	.0510	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Grade C, 80-90, 375 endpoint, rec. 78%	.0525	.0825	.035	.0562	0489	.086	.1025	.075	.0859	.0861	.112	.155	.0775	.1057	.1182
North Texas:															
Grade A, 72-78, 375 endpoint, rec. 90%	.0585	.0962	.045	.0612	.0558	.0959	.1075	.0825	099	.0927	.1199	.1575	.1875	.1149	.1248
Grade B, 76-83.9, 375 endpoint, rec. 85%	.0542	.085	.0412	.0575	.0508	.0926	.105	.0787	.0863	.0888	.1158	.1575	185	.1094	.1219
Grade C, 80-90, 375 endpoint, rec. 78%	.0519	.0837	.035	.055	.0487	.0866	.1025	.075	.0865	.0867	.1186	.1575	.0775	.1057	.1121
California:															
75-85 370-390 endpoint	.0930	125	.07	.1023	.0838	.1465	.17	.11	.156	.135	.1281	.15	.11	.128	.1278
BURNING OILS—															
Oklahoma (Group 3):															
41-43 water white Kerosene	.0461	.0612	.04	.0496	.0426	.0727	.105	.0525	.0729	.0725	.0445	.0512	.0387	0428	.0463
42-44 water white Kerosene	.0503	.0675	.0437	.0541	.0465	.0769	.1075	.0562	.0761	.0776	.0479	.055	.0425	.0457	.0502
Kansas:															
41-43 water white Kerosene	.0491	.065	.0425	.0532	.0450	.077	.1075	.0575	.0764	.0776	.0467	.055	.0425	.0461	.047
North Texas:															
41-43 water white Kerosene	.0453	.0612	.0362	.0486	0419	.0728	.1025	.0525	.0733	.0724	.0445	.0537	.0387	0428	.0452
Pennsylvania:															
43 Kerosene prime white	.0646	.0825	.055	.0692	.0600	.0885	.12	.0725	.0886	0895	.0656	.075	.06	.0679	.0634
45 Kerosene water white	.0696	.085	.0575	.0712	.0619	.0921	.125	.0737	.093	.0912	.0681	.0775	.0625	.0693	.0671
California:															
38-40 water white Kerosene (high burning test)	.0583	.07	.05	.0634	.0531	.0745	.09	.07	.0759	.0731	.075	.075	.075	.075	.075
Engine Distillate, 43-45 445 endpoint	.0677	.08	.0425	.0697	.0756	.0919	.11	.0775	.0960	.0879	.0774	.085	.065	.08	.0746
Engine Distillate, 42-46 480 endpoint	.0693	.0775	.04	.0655	.0730	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
FUEL OILS—															
Oklahoma (Group 3):															
Below 18 Fuel Oil, bbl.	.8889	1.225	.70	1.0182	.7596	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
24-26 Fuel Oil, bbl.	.9792	1.275	.80	1.0990	.8394	1.3072	1.49½	1.20	1.2865	1.3279	1.0908	1.30	.85	1.0913	1.0904
32-36 Gas Oil	.0299	.045	.0237	.0341	0257	.0419	.045	.035	.0395	.0427	.0327	.0375	.0275	.0325	.0320
38-40 Straw Distillate	.0353	.0525	.03	.0391	.0315	.0473	.055	.0375	.0426	.052	.0368	.04	.03	.0349	.0385
Kansas:															
24-26 Fuel Oil	1.0385	1.45	.80	1.2211	.8558	1.3919	1.60	1.25	1 3587	1.425	1.1812	1.50	.90	1 1519	1.1702
North Texas:															
24-26 Fuel Oil	.9981	1.55	.75	1.1902	.8010	1.3904	1.55	1.20	1.3375	1.4433	1.1765	1.55	.90	1.1471	1.1711
32-36 Gas Oil	.0284	.0437	.0225	.0333	.0234	.0401	.045	.035	.0384	.0418	.0328	.04	.0275	.0328	.0328
38-40 Straw Distillate	.0338	.05	.0287	.0375	.0300	.0457	.055	.0375	.0406	.0509	.0349	.0412	.0312	.0354	.0363
North Louisiana:															
18-20 Fuel Oil	1.1226	1.30	.90	1.1798	1.0653	1.2346	1.35	1 10	1.199	1.2702	1.0789	1.40	90	1.1288	1.0284
Gulf Coast:															
Fuel Oil, bbl.	1.5510	1.75	1.25	1.6115	1 4904	1.7059	1.75	1.50	1.6617	1.75	1.5872	1.70	1.45	1.6021	1.5725
Gas Oil	.0448	.055	.0387	.1487	.0408	.0532	.0562	.0475	.0511	.0554	.0477	.0525	.045	.0479	.0477
Pennsylvania:															
30-34 Fuel Oil	.0477	.0612	.0375	.0547	.0407	.0591	.065	.055	.0587	.0595	.053	.0625	.0425	.0534	.0525
36-40 Fuel Oil	0500	.065	.04	.0596	.0433	.0636	.07	.0625	0636	.064	.0593	.07	.0525	0616	.057
California:															
27-32 Distillate	.0319	.035	.0225	.0338	.0299	.0385	.045	.035	.0406	.0364	.0402	.045	.0375	.0405	.04
15-20 Fuel Oil (tidewater) Bunker	.9221	.925	.85	.8961	.948	.9813	1.00	.925	1.00	.9625	1.4068	1.60	1.00	1.5344	1.215
27 plus Diesel	1.15	1.15	1.15	1.15	1.15	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
LUBRICATING OILS AND WAX—															
100 vis., 3 color, 20-25 cold test	.0625	.0675	.06	.0642	.0608	.0637	.065	.0475	.0625	.065	.0617	.08	.04	.07	.053
180 vis., 3 color, 23-28 cold test	.0981	10	.0937	.0988	.0973	.101	.10½	.0925	.1008	.105	.1031	.11	085	.1038	.102
200 vis., 3 color, 23-28 cold test	.1032	.1075	.095	.1061	.1002	.1072	.11¼	.10¼	.1108	.1075	.1139	.12	.10	.1154	.113
180 vis., 5 color, 23-28 cold test	.0945	.0975	.0912	.0990	.0929	.0968	.0975	.0875	.096	.0925	.1015	.105	.075	.0981	.104
200 vis., 5 color, 23-28 cold test	.1016	.105	.0925	.1025	.1006	.1068	.1075	.0975	.106	.1075	.1085	.115	.09	.1096	.107
240 vis., 5 color, 23-28 cold test	.1251	.13	.1225	.1208	1233	.1304	.135	.125	1308	.13	.1414	.15	.12	.1435	.139
190-200 vis. @ 210 Bright Stock	.3087	.31	.30	.31	.3073	.3067	.33	.30	.3034	.31	.3052	.31	.29	.3058	.304
200 straw-oil, light green	.0764	.08	.07	.08	.0727	.0806	.085	.08	.0813	.08	.0793	.10	.065	.0838	.078
						.0471	.05	.0412	.0482	.046	.0516	.055	05	.0509	.052

MID-CONTINENT FIELDS—NORTH AND EAST CENTRAL TEXAS

	Jan. 1	Feb. 22	Mar. †5	Mar. ‡12	Apr. §7	Apr. §20	May §5	Sept. §14
*Below 28 gravity	1 30	1 30	1 20	1 10	1 05	95	1 05	1.05
28 to 28.9	1.50	1.35	1 23	1.12	1 05	95	1 05	1 05
29 to 29.9	1 55	1 39	1.26	1.14	1 05	95	1 05	1 05
30 to 30.9	1 60	1 43	1 29	1 16	1 05	95	1 05	1 16
31 to 31.9	1.65	1 47	1.32	1.18	1 05	95	1 05	1 18
32 to 32.9	1.70	1.51	1 35	1 20	1 05	95	1 05	1 20
33 to 33.9	1 75	1 55	1 38	1 22	1 07	97	1 07	1 22
34 to 34.9	1.80	1.59	1 41	1.24	1 09	99	1 09	1 24
35 to 35.9	1 85	1 63	1.44	1.26	1 11	1 01	1 11	1 26
36 to 36.9	1 90	1 67	1 47	1 28	1 13	1 03	1 13	1 28
37 to 37.9	1.95	1 71	1.50	1.30	1 15	1 05	1 15	1 30
38 to 38.9	2.00	1.75	1 53	1 32	1 17	1 07	1 17	1 32
39 to 39.9	2 05	1 79	1 56	1 34	1 19	1 09	1 19	1 34
40 to 40.9	2.10	1.83	1 59	1.36	1 21	1 11	1 21	1 36
41 to 41.9	2 15	1 87	1.62	1.38	1 23	1 13	1 23	1 38
42 to 42.9	2 20	1 91	1 65	1 40	1 25	1 15	1 25	1 40
43 to 43.9	2.25	1 95	1.68	1.42	1 27	1 17	1 27	1 42
44 to 44.9	2.30	1.99	1 71	1 44	1 29	1 19	1 29	1 44
45 to 45.9	2 35	2 03	1 74	1 46	1 31	1 21	1 31	1 46
46 to 46.9	2.40	2.07	1 77	1.48	1 33	1 23	1 33	1 48
47 to 47.9	2 45	2 11	1.80	1.50	1 35	1 25	1 35	1 50
48 to 48.9	2 50	2 15	1 83	1 52	1 37	1 27	1 37	1 52
49 to 49.9	2.55	2 19	1.86	1.54	1 39	1 29	1 39	1 54
50 to 50.9	2.60	2.23	1 89	1 56	1 41	1 31	1 41	1 56
51 to 51.9	2 65	2 27	1 92	1 58	1 43	1 33	1 43	1 58
52 and above	2.70	2.31	1 95	1 60	1 45	1 35	1 45	1 60
Corsicana heavy	1 25	1 25	1 10	1 10	1 00	1 00	1.00	1 00

Note: Gravity price schedule includes postings of all major companies in field with exceptions shown.

Postings by: Prairie Oil & Gas Co., The Texas Company and Sinclair Crude Purchasing Co., includes Oklahoma, Kansas and North Texas. Magnolia Petroleum Co., includes Oklahoma, Kansas, North Texas, Panola County in East Texas, Lytton Springs in Southwest Texas and (after March 5) the Iatan district in West Texas. Humble Oil & Refining Co., includes North Texas, Ranger, Mexia, Powell, Richland, Wortham, Currie, Moran, Nocone, Lytton Springs and Corsicana light. Carter Oil Co. and Gypsy Oil Co., includes Oklahoma and Kansas.

*Magnolia Petroleum Co. only. On January 1 the Humble Oil & Refining Co. and the Carter Oil Co. were paying 5 cents less for each degree in gravity below 28. On February 22 the Humble Oil & Refining Co. and the Carter Oil Co. reduced the differential per degree below 28 gravity to 4 cents. On March 5 the Carter Oil Co. posted a 3-cent differential per degree below 28 gravity. On March 7 the Humble Oil & Refining Co. also adopted a 3-cent differential. On March 12 these companies reduced the differential to 2 cents. On November 16 Humble Oil & Refining Co. posted 90 cents for crude below 25 gravity. Other companies do not buy crude below 28 gravity.

†Adopted by Humble Oil & Refining Co. March 7.

‡Adopted by Carter Oil Co. and The Texas Company March 14.

§Posted by Magnolia Petroleum Co. on September 1. Humble Oil & Refining Co. posted Lytton Springs crude same as Magnolia May 5 schedule. On September 14 again posted same price on Lytton Springs oil as other Mid-Continent crudes.

Magnolia Petroluem Co. posted Corsicana heavy at $1 on March 14.

MIDDLE WESTERN STATES

Ohio Oil Co.

	Jan.1	Feb.23	Mar.7	Mar.14	Aug.2
Lima	2 21	2 01	1 84	1.71	....
Wooster	2 25	2 05	1 90	1 77	1 57
Illinois	2.10	1 90	1 73	1.60	....
Indiana	1 98	1 78	1 61	1 48	..
Princeton	2 10	1 90	1 73	1.60	..
Plymouth	1 63	1 43		1 33	
Waterloo	*1 35	....	....	....	....
Western Kentucky	1 83	1.63	1 46	1 32	..

Cumberland, Barren†, Clinton and Monroe Counties in Kentucky, and Clay and Pickett Counties in Tennessee had posted price of $2.35 on January 1, set by the Paragon Development Co. On February 1 all reduced to $2.20; February 21 to $2; March 2, $1.80; March 7, $1.65, and March 16, $1.50.

*Waterloo reduced to $1.20 May 10.

†A premium of 20 cents is paid for Barren County crude.

Oil City, Ky., crude on January 1 was $2.35. The Stoll Oil Refining Co. posted the following changes on oil in their lines: January 31, $2.20; February 19, $2; March 2, $1.80; March 7, $1.65; March 16, $1.50.

	Jan.1	May 27
Saginaw (Saginaw sand)	2 95	2.05
Saginaw (Brea sand)	....	1.95

Note: Saginaw, Mich., crudes posted by Sun Oil Co.

GULF COAST

Jennings—On January 1 the Gulf Pipe Line Co. was paying $1.15 and M set $1.05.

Saratoga, Batson and Dayton—On January 1 the Sun Pipe Line Co. wa $1.40; on March 8 posted $1.30 and on March 14, $1.20.

	Jan.1	†Mar.7
Grade A	1 40	1 30
Grade B*	1.40	1 25
Gulf Coast light*:		
Below 25 gravity	1 40	1 25
25 to 25.9 gravity	1 45	1 28
26 to 26.9 gravity	1.50	1 31
27 to 27.9 gravity	1.55	1 34
28 to 28.9 gravity	1 60	1 37
29 to 29.9 gravity	1 65	1 40
30 to 30.9 gravity	1 70	1 43
31 to 31.9 gravity	1 75	1 46
32 to 32.9 gravity	1 80	1 49
33 to 33.9 gravity	1 85	1 52
34 to 34.9 gravity	1 90	1 55
35 to 35.9 gravity	1.95	1 58
36 to 36.9 gravity	2 00	1 61
37 to 37.9 gravity	2.05	1 64
38 to 38.9 gravity	2 10	1 67
39 to 39.9 gravity	2 15	1 70
40 and above gravity	2.20	1 73

Note—Gulf Coast includes Goose Creek, Hull, Liberty, West Columbia, C Boling, Sour Lake, Humble, High Island, Pierce Junction and Spindletop field

*Grade B posted at flat price by The Texas Company. All other compa Humble Oil & Refining Co., Gulf Pipe Line Co., Sun Pipe Line Co. and M Petroleum Co. (in Spindletop only) post Grade B crude on the same schedule Coast light except do not differentiate price on gravities above 35. Oil 35 and is posted at same price as 35 to 35.9 grade. The Texas Company is only one the complete schedule on Gulf Coast light oils.

†Sun Pipe Line Co. posted this schedule on March 8.

ROCKY MOUNTAIN FIELDS

Salt Creek (Wyo.) Midwest Refining Co.

Gravity—	Jan.1	Feb.22	Mar.5
28 to 28.9	1.50	1 35	1 23
29 to 29.9	1 55	1 39	1 26
30 to 30.9	1 60	1 43	1 29
31 to 31.9	1.65	1 47	1.32
32 to 32.9	1 70	1.51	1 35
33 to 33.9	1 75	1 55	1.38
34 to 34.9	1 80	1 59	1 41
35 to 35.9	1 85	1.63	1 44
36 to 36.9	1.90	1 67	1 47
37 and above	1.95	1 71	1 50

	Jan.1	Feb.23	Mar.7
Rock Creek (Wyo.)	1 85	1 62	1 42
Big Muddy	1 85	1 62	1 42
Mule Creek	1.45	1 30	....
Grass Creek, light	2 00	1 75	1 55
Grass Creek, heavy	90	....	....
Elk Basin	2 00	1 75	1 55
Lance Creek	2 00	1 75	1 55
Poison Spider	1.00	....	....
Notches	65	....	....
Rex Lake	1 25	1 10	....
Osage	2.00	1 75	1.55
Lost Soldier	1 60	....	....
Greybull-Torchlight	2 00	....	....
Hamilton Dome	1 35	....	....
Cat Creek (Mont.)	2.00	1 75	1 55
Sunburst	1 35	....	....
Artesia (N. Mex.)	1 65	1 40	1 20
Hog Back	2 45	2 20	2 00

*Posted May 13 by Ohio Oil Co., and May 1 by Midwest Refining Co.

Note: Rock Creek, Big Muddy, Mule Creek, Grass Creek light and heavy Basin, Lance Creek, Rex Lake, Sunburst and Artesia posted by Ohio Oil C others and Grass Creek light posted by Midwest Refining Co.

EASTERN STATES

Joseph Seep Purchasing Agency

	January 1	January 14	February 19	February 23	March 2	March 7	March 16	April 13	August 1	August 23	December 4	D
Pa. grade oil in N. Y. Transit Lines (N. Y.)	3.15	3.40	...	3.25	...	3.15	...	2.90	2.65	...	2.75	2
Bradford oil in Naitonal Transit Lines (Pa.)	3.15	3.40	...	3.25	...	3.15	...	2.90	2.65	...	2.75	2
Pa. grade oil in National Transit Lines (Pa.)	3.05	3.30	...	3.15	...	3.05	...	2.80	2.55	...	2.60	2
Pa. grade oil in Southwest Pa. Lines (W. Va.)	3.05	3.30	...	3.15	...	3.05	...	2.80	2.55	...	2.60	2
Pa. grade oil in Eureka Lines (Pa.)	3.00	3.25	...	3.10	...	3.00	...	2.75	2.50	...	2.55	2
Pa. grade oil in Buckeye Lines (Ohio)	2.80	3.10	...	2.95	...	2.85	...	2.60	2.35	2.25	...	2
Cabell grade oil in Eureka Lines (W. Va.)	2.10	2.10	1.90	...	1.70	1.55	1.40	...	...	...	1.50	
Corning 25-cent grade oil in Buckeye Lines (Ohio)	2.25	2.25	...	†2.05	1.85	‡1.65	§1.55	‖1.45	...	...	...	1
Corning 35-cent grade oil in Buckeye Lines (Ohio)	2.15	2.15	...	†1.95	1.75	‡1.55	§1.45	‖1.35	...	...	...	1
Somerset medium in Cumberland Lines (Ky.)	2.20	2.20	2.00	...	1.80	1.65	1.50	...	...	...	1.60	
Somerset light in Cumberland Lines (Ky.)	*2.35	2.35	2.00	...	1.80	1.65	1.50	...	...	...	1.60	
Ragland grade oil in Cumberland Lines (Ky.)	.95	.95	...	...	...	...	...	...	...	...	...	
Keister (Pa.)	1.80	1.80	1.60	...	1.40	1.25	...	1.10	...	...	...	

* On January 31 the two grades of Somerset oil were merged and the light grade took the same prices as the medium ($2.20).

† Effective February 24. ‡ Effective March 8. § Effective March 17. ‖ Effective April 18.

ARKANSAS-NORTH LOUISIANA

Caddo, Bull Bayou, Crichton, DeSoto, Haynesville, Homer, (La.) and El Dorado, Ark.

	Jan.1	*Feb.22	**Feb.24	‡Mar.5	Mar.11
Below 28	†1 40	†1 30	1 25	1 20	1 10
28 to 28.9	1 50	1 35	1 35	1.23	1 12
29 to 29.9	1 55	1 39	1.39	1 26	1 14
30 to 30.9	1 60	1.43	1.43	1 29	1 16
31 to 31.9	1 65	1 47	1.47	1 32	1 18
32 to 32.9	1 70	1 51	1 51	1.35	1 20
33 to 33.9	1.75	1 55	1 55	1 38	1 22
34 to 34.9	1.80	1 59	1 59	1.41	1 24
35 to 35.9	1 85	1 63	1.63	1 44	1 26
36 to 36.9	1 90	1 67	1 67	1 47	1 28
37 to 37.9	1 95	1 71	1.71	1 50	1 30
38 to 38.9	2.00	1 75	1 75	1.53	1 32
39 to 39.9	2 05	1 79	1 79	1 56	1 34
40 to 40.9	2 10	1 83	1 83	1.59	1 36
41 to 41.9	2.15	1 87	1.87	1 62	1 38
42 to 42.9	2.20	1 91	1 91	1 65	1 40
43 to 43.9	2 25	1 95	1.95	1 68	1 42
44 to 44.9	2 30	1 99	1 99	1.71	1 44
45 to 45.9	2 35	2 03	2 03	1 74	1 46
46 to 46.9	2.40	2 07	2 07	1.77	1 48
47 to 47.9	2 45	2 11	2.11	1 80	1 50
48 to 48.9	2 50	2 15	2 15	1 83	1 52
49 to 49.9	2.55	2 19	2.19	1 86	1 54
50 to 50.9	2.60	2 23	2 23	1.89	1 56
51 to 51.9	2 65	2 27	2 27	1 92	1 58
52 and above	2 70	2.31	2 31	1.95	1 60

Major companies posting are:

Magnolia Petroleum Co., Pine Island (Caddo), Haynesville, Bull Bayou and El Dorado.

Standard Oil Co. (La.) and Gulf Refining Co., all fields.

Atlantic Oil Producing Co., Homer, Haynesville and West El Dorado.

The Texas Company, Caddo, Bull Bayou and Crichton.

Louisiana Oil Refining Corp., all fields.

*Magnolia Petroleum Co., The Texas Company, Standard Oil Co. and other companies changed on February 24. Magnolia Petroleum prices effective in Louisiana only, extending to El Dorado Field February 25 with reduction in price below 28 gravity crude to $1.25.

‡The Texas Company only. Met by Magnolia Petroleum Co. March 7, and other companies March 8.

**Standard Oil Co. and Gulf Refining Co. met by Magnolia February 25.

†Magnolia Petroleum Co. only.

Smackover—	Jan. 1	*Feb. 24	**Mar. 8	†Mar. 16	‡July 6	§Sept. 17	§§Nov. 19
Below 24	1.10	..	....	1 00	1 00	.90	.85
24 to 24.9	1 35	1 25				1 15	1 00
25 to 25.9	1 40	1.25		..	..	1 15	1.00
26 to 26.9	1 45	1 25	..	....		1 15	1 00
27 and above	1.50	1.25			1 25	1 15	1.00
24 to 27.9		....	1 25	1 15		1 15	1 00
28 to 28.9		..	1 28	1.17		1 15	1 00
29 to 29.9		..	1 31	1 19		1 15	1 00
30 and above		..	1.34	1 21	..	1 15	1.00

*Posted by Standard Oil Co., The Texas Company, Gulf Refining Co., and Atlantic Oil Producing Co. and Louisiana Oil Refining Corp. Met by Magnolia Petroleum Co. February 25.

**Atlantic Oil Producing Co. and Louisiana Oil Refining Corp. only.

‡Atlantic Oil Producing Co. and Louisiana Oil Refining Corp. Other companies followed cut on below 24 gravity crude March 17 but continued posting of $1.25 for crude above 24 gravity. Magnolia price on crude above 24 gravity, effective March 16, $1.15.

‡Louisiana Oil Refining Corp. Other companies July 7.

§Louisiana Oil Refining Corp. Other companies September 20.

§§Louisiana Oil Refining Corp. Other companies November 21.

	Jan. 1	Feb. 24	*Mar. 17	Sept. 15	Sept. 20	Sept. 24	Nov. 18	†Dec. 1
Cotton Valley	1 20	1 10	1 00		..			.85
Bellvue	1 40	1 20		..	....	1 20	....	
Urania	1.10		1 00	.90			75	
Calion	1 10		1 00		90	....	....	

Cotton Valley: Standard Oil Co. of Louisiana, Magnolia Petroleum Co. and Louisiana Oil Refining Corp.

Bellevue: Standard Oil Co. of Louisiana, Gulf Refining Co. and Louisiana Oil Refining Corp.

Urania: Louisiana Oil Refining Corp.

Calion (East El Dorado): Gulf Refining Co.

*Louisiana Oil Refining Corp. and Magnolia Petroleum Co., Standard Oil Co. of Louisiana, March 16.

†Louisiana Oil Refining Corp. Other companies December 2.

Stephens—	Jan.1	Feb.11	Feb.24	Mar.8	Mar.14
Below 28	1 30	1.30	1 10	....	1 00
28 to 28.9	1.40	1 40	1 20	1 13	1 02
29 to 29.9	1 45	1 45	1.24	1 16	1.04
30 and above	1 50	..	....	....	....
30 to 30.9		1 50	1 28	1 19	1.06
31 to 31.9		1 55	1 32	1 22	1 08
32 and above		1.60	1 36	1.25	1 10

Posted by Atlantic Oil Refining Corp. and Louisiana Oil Refining Corp.

SOUTH CENTRAL AND SOUTHWESTERN TE

Lytton Springs—Posted by the Magnolia Pipe Line Co. and Humble under the Mid-Continent gravity schedule.

Thrall—Effective March 16, 1926, Magnolia Pipe line Co. posts corresponding grade Mid-Continent crude less 19½ cents freight

Rockdale-Minerva—

Up to 37.9 gravity	
38 to 38.9 gravity	
39 to 39.9 gravity	
40 and up gravity	

	Jan. 1	Mar. 14	Apr. 7
Luling	1 30	.05	1 00
Calliham	1 75	No posted price.	
Mirando	1 25	.00	

Somerset—

	Jan. 1	Feb. 23	Mar. 7
28 to 28.9 gravity	1 35	.35	1 23
29 to 29.9 gravity	1 45	.39	1.26
30 to 30.9 gravity	1 60	.43	1 29
31 to 31.9 gravity	1.65	.47	1 32
32 to 32.9 gravity	1.70	.51	1 35
33 to 33.9 gravity	1 75	.55	1.38
34 to 34.9 gravity	1.80	.59	1 41
35 to 35.9 gravity	1 85	.63	1 44
36 to 36.9 gravity	1 90	.67	1 47
37 to 37.9 gravity	1 95	1 71	1.50
38 and above	2 00	1 75	1 53

*Grayburg Pipe Line Co. only.

Note—Luling posted by the Magnolia Pipe Line Co. and Grayb Co., Rockdale-Minerva by Kent-Middleton Refining Co., Calliham (McMullen Counties) by Dependable Oil Co., Mirando (Webb, Jim Hog Counties) by Texpata Pipe Line Co., Magnolia Pipe Line Co., Humb fining Co. and the Crown Central Pipe Line Co. Somerset posted by Line Co., Pioneer Oil Refining Co. and Witherspoon Refining Co.

WEST TEXAS

*Iatan—On January 1 the Magnolia Petroleum Co. was paying March 4 it was placed on gravity basis with North and East Central. On January 1 the Kay County Gas Co. was paying $1.65 for Howard with average gravity of 30 to 31. On February 22 both companies po March 5, $1.29, and on May 21, $1.05.

Crane, Upton, Pecos and Crockett Counties—	Jan. 1	Feb. 22	†Mar. 7
Below 26 gravity	.80	.80	.80
26 to 26.9 gravity	.85	.84	.83
27 to 27.9 gravity	.90	.88	.86
28 to 28.9 gravity	.95	.92	.89
29 to 29.9 gravity	1 00	.96	.92
30 to 30.9 gravity	1 05	.00	.95
31 to 31.9 gravity	1 10	.04	.98
32 to 32.9 gravity	1 15	.08	1.01
33 to 33.9 gravity	1 20	.12	1 04
34 to 34.9 gravity	1 25	.16	1 07
35 to 35.9 gravity	1 30	.20	1 10
36 and above	1 35	1 24	1.13

*Includes Howard and Westbrook Fields.

†Posted by Humble Oil & Refining Co. and Gulf Pipe Line Co. On Kay County Gas Co.

‡Posted by Humble Oil & Refining Co., met by all other companies.

Note—Gravity price schedule includes postings by Humble Oil & R Kay County Gas Co. and (after March 7) the Gulf Refining Co., except

Gravity—	Sea Beach Fullerton Long Beach Hunt. Beach Richfield Rosecrans-Dominguez Torrance-Ingewood (1) Jan. 1	(1) Apr. 1	Whittier La Habra Montebello (2) Jan. 1	(2) Apr. 1
14°	.87	.85	.85	.85
15°	.87	.85	.85	.85
16°	.90	.85	.85	.85
17°	.94	.85	.85	.85
18°	.98	.85	.86	.85
19°	1.04	.85	.87	.85
20°	1.10	.85	.89	.85
21°	1.16	.86	.91	.85
22°	1.22	.87	.94	.85
23°	1.28	.88	.97	.85
24°	1.34	.89	1.01	.85
25°	1.40	.90	1.05	.86
26°	1.46	.92	1.09	.87
27°	1.52	.94	1.13	.88
28°	1.58	.96	1.17	.89
29°	1.64	.98	1.21	.90
30°	1.70	1.00	1.25	.91
31°	1.76	1.03	....	....
32°	1.84	1.06	....	....
33°	1.92	1.09	....	....
34°	2.00	1.12	....	....
35°	2.08	1.15	....	....
36°	2.16	1.18	....	....
27°	2.24	1.21	....	....
38°	2.32	1.24	....	....
39°	2.40	1.27	....	....
40°	2.50	1.30	....	....
41°	2.60	1.33	....	....
42°	2.70	1.36	....	....

*Column 1—Long Beach, Seal Beach and Huntington Beach crud 14 to 28 degrees; Dominguez, 24 to 42 degrees. Rosecrans crude rang

Column 2—Whittier crude, 14 to 3 degrees; Montebello, 14 to 3

Column 3—Kern River, Newhall McKittrick, 14 to 19 degree degrees.

Column 8—Salt Lake, 14 to 19 de inclusive; Santa Maria, 1

ARKANSAS-NORTH LOUISIANA

Caddo, Bull Bayou, Crichton, DeSoto, Haynesville, Homer, (La.) and El Dorado, Ark.

	Jan.1	*Feb.22	**Feb.24	‡Mar.5	Mar.14
Below 28	‡1 40	‡1 30	1 25	1 20	1 10
28 to 28.9	1 50	1 35	1 35	1.23	1 12
29 to 29.9	1 55	1 39	1.39	1 26	1 14
30 to 30.9	1 60	1.43	1.43	1 29	1 16
31 to 31.9	1 65	1 47	1.47	1 32	1 18
32 to 32.9	1 70	1 51	1 51	1.35	1 20
33 to 33.9	1.75	1 55	1 55	1 38	1 22
34 to 34.9	1.80	1 59	1 59	1.41	1 24
35 to 35.9	1 85	1 63	1.63	1 44	1 26
36 to 36.9	1 90	1 67	1 67	1 47	1 28
37 to 37.9	1 95	1 71	1.71	1 50	1 30
38 to 38.9	2.00	1 75	1 75	1.53	1 32
39 to 39.9	2 05	1 79	1 79	1 56	1 34
40 to 40.9	2 10	1 83	1 83	1.59	1 36
41 to 41.9	2.15	1 87	1.87	1 62	1 38
42 to 42.9	2.20	1 91	1 91	1 65	1 40
43 to 43.9	2 25	1 95	1.95	1 68	1 42
44 to 44.9	2 30	1 99	1 99	1.71	1 44
45 to 45.9	2 35	2 03	2 03	1 74	1 46
46 to 46.9	2.40	2 07	2 07	1.77	1 48
47 to 47.9	2 45	2 11	2.11	1 80	1 50
48 to 48.9	2 50	2 15	2 15	1 83	1 52
49 to 49.9	2.55	2 19	2.19	1 86	1 54
50 to 50.9	2.60	2 23	2 23	1.89	1 56
51 to 51.9	2 65	2 27	2 27	1 92	1 58
52 and above	2 70	2.31	2 31	1.95	1 60

Major companies posting are:

Magnolia Petroleum Co., Pine Island (Caddo), Haynesville, Bull Bayou and El Dorado.

Standard Oil Co. (La.) and Gulf Refining Co., all fields.

Atlantic Oil Producing Co., Homer, Haynesville and West El Dorado.

The Texas Company, Caddo, Bull Bayou and Crichton.

Louisiana Oil Refining Corp., all fields.

*Magnolia Petroleum Co., The Texas Company, Standard Oil Co. and other companies changed on February 24. Magnolia Petroleum prices effective in Louisiana only, extending to El Dorado Field February 25 with reduction in price below 28 gravity crude to $1.25.

‡The Texas Company only. Met by Magnolia Petroleum Co. March 7, and other companies March 8.

**Standard Oil Co. and Gulf Refining Co. met by Magnolia February 25.

†Magnolia Petroleum Co. only.

	Jan.	*Feb.	**Mar.	†Mar.	‡July	§Sept.	§§Nov.
Smackover—	1	24	8	16	6	17	19
Below 24	1.10	..	....	1 00	1 00	.90	.85
24 to 24.9	1 35	1 25				1 15	1 00
25 to 25.9	1 40	1.25		..	..	1 15	1.00
26 to 26.9	1 45	1 25	..	....		1 15	1 00
27 and above	1.50	1.25			1 25	1 15	1.00
24 to 27.9	..	....	1 25	1 15		1 15	1 00
28 to 28.9	..		1 28	1.17		1 15	1 00
29 to 29.9	..	..	1 31	1 19		1 15	1 00
30 and above	..	..	1.34	1 21	..	1 15	1.00

*Posted by Standard Oil Co., The Texas Company, Gulf Refining Co., and Atlantic Oil Producing Co. and Louisiana Oil Refining Corp. Met by Magnolia Petroleum Co. February 25.

**Atlantic Oil Producing Co. and Louisiana Oil Refining Corp. only.

†Atlantic Oil Producing Co. and Louisiana Oil Refining Corp. Other companies followed cut on below 24 gravity crude March 17 but continued posting of $1.25 for crude above 24 gravity. Magnolia price on crude above 24 gravity, effective March 16, $1.15.

‡Louisiana Oil Refining Corp. Other companies July 7.

§Louisiana Oil Refining Corp. Other companies September 20.

§§Louisiana Oil Refining Corp. Other companies November 21.

	Jan. 1	Feb. 24	*Mar. 17	Sept. 15	Sept. 20	Sept. 24	Nov. 18	†Dec. 1
Cotton Valley	1 20	1 10	1 00		..			.85
Bellvue	1 40	1 20		..	....	1 20	....	
Urania	1.10		1 00	.90			75	..
Calion	1 10		1 00		90	....	..	

Cotton Valley: Standard Oil Co. of Louisiana, Magnolia Petroleum Co. and Louisiana Oil Refining Corp.

Bellevue: Standard Oil Co. of Louisiana, Gulf Refining Co. and Louisiana Oil Refining Corp.

Urania: Louisiana Oil Refining Corp.

Calion (East El Dorado): Gulf Refining Co.

*Louisiana Oil Refining Corp. and Magnolia Petroleum Co., Standard Oil Co. of Louisiana, March 16.

†Louisiana Oil Refining Corp. Other companies December 2.

Stephens—	Jan.1	Feb.11	Feb.24	Mar.8	Mar.14
Below 28	1 30	1.30	1 10		1 00
28 to 28.9	1.40	1 40	1 20	1 13	1 02
29 to 29.9	1 45	1 45	1.24	1 16	1.04
30 and above	1 50	..	....	....	....
30 to 30.9		1 50	1 28	1 19	1.06
31 to 31.9		1 55	1 32	1 22	1 08
32 and above		1.60	1 36	1.25	1 10

Posted by Atlantic Oil Refining Corp. and Louisiana Oil Refining Corp.

SOUTH CENTRAL AND SOUTHWESTERN TEXAS

Lytton Springs—Posted by the Magnolia Pipe Line Co. and Humble Pipe Line under the Mid-Continent gravity schedule.

Thrall—Effective March 16, 1926, Magnolia Pipe Line Co. posts same p corresponding grade Mid-Continent crude less 19½ cents freight per cwt.

Rockdale-Minerva—

	Jan.1
Up to 37.9 gravity	1 25
38 to 38.9 gravity	1 25
39 to 39.9 gravity	1.25
40 and up gravity	1.25

	Jan. 1	Mar. 14	Apr. 7	Apr. 20
Luling	1 30	05	1 00	95
Calliham	1 75	No posted price. Follows m		
Mirando	1 25	00		

Somerset—	Jan. 1	Feb. 23	Mar. 7	Mar.12
28 to 28.9 gravity	1 35	35	1 23	1.12
29 to 29.9 gravity	1 45	39	1 26	1 14
30 to 30.9 gravity	1 60	43	1 29	1 16
31 to 31.9 gravity	1.65	47	1 32	1 18
32 to 32.9 gravity	1.70	51	1 35	1 20
33 to 33.9 gravity	1 75	55	1.38	1 22
34 to 34.9 gravity	1 80	59	1 41	1 24
35 to 35.9 gravity	1 85	63	1 44	1 26
36 to 36.9 gravity	1 90	67	1 47	1.28
37 to 37.9 gravity	1 95	1 71	1.50	1 30
38 and above	2 00	1 75	1 53	1 32

*Grayburg Pipe Line Co. only.

Note—Luling posted by the Magnolia Pipe Line Co. and Grayburg Pipe Co., Rockdale-Minerva by Kent-Middleton Refining Co., Calliham (Live Oak McMullen Counties) by Dependable Oil Co., Mirando (Webb, Jim Hogg and Z Counties) by Texpata Pipe Line Co., Magnolia Pipe Line Co., Humble Oil & fining Co. and the Crown Central Pipe Line Co. Somerset posted by Grayburg Line Co., Pioneer Oil Refining Co. and Witherspoon Refining Co.

WEST TEXAS

*Iatan—On January 1 the Magnolia Petroleum Co. was paying $1.50; March 4 it was placed on gravity basis with North and East Central Texas cr On January 1 the Kay County Gas Co. was paying 8.65 for Howard County with average gravity of 30 to 31. On February 22 both companies posted $1.43 March 5, $1.29, and on May 21, $1.05.

Crane, Upton, Pecos and Crockett Counties	Jan. 1	Feb. 22	†Mar. 7	Mar. 14	‡
Below 26 gravity	80	80	80	70	
26 to 26.9 gravity	85	84	83	72	
27 to 27.9 gravity	90	88	86	74	
28 to 28.9 gravity	95	92	89	76	
29 to 29.9 gravity	1 00	96	92	78	
30 to 30.9 gravity	1 05	00	95	80	
31 to 31.9 gravity	1.10	04	98	82	
32 to 32.9 gravity	1 15	08	1 01	84	
33 to 33.9 gravity	1 20	12	1 04	86	
34 to 34.9 gravity	1 25	16	1 07	88	
35 to 35.9 gravity	1 30	20	1 10	90	
36 and above	1 35	24	1 13	92	

*Includes Howard and Westbrook Fields.

‡Posted by Humble Oil & Refining Co. and Gulf Pipe Line Co. On March Kay County Gas Co.

‡Posted by Humble Oil & Refining Co., met by all other companies August

Note—Gravity price schedule includes postings by Humble Oil & Refining Kay County Gas Co. and (after March 7) the Gulf Refining Co., except as shown

	Seal Beach				Standard
	Fullerton				Kern R
	Long Beach				Newh
	Hunt. Beach				McKit
	Richfield				Midv
	Rosecrans				Suns
	Dominguez		Whittier		Elk H
	Torrance		La Habra		Lost H
	Inglewood		Montebello		Belri
	1		2		3
Gravity	Jan. 1	Apr. 1	Jan. 1	Apr. 1	Jan. 1
14°	.85	.85	85	.85	75
15°	.87	.85	85	.85	75
16°	.90	.85	85	.85	75
17°	.94	.85	85	.85	75
18°	.98	.85	86	.85	75
19°	1.04	.85	.87	.85	75
20°	1.10	.85	.89	.85	.82
21°	1.16	.86	.91	.85	.90
22°	1.22	.87	.94	.85	1.00
23°	1.28	.88	.97	.85	1.11
24°	1.34	.89	1.01	.85	1.22
25°	1.40	.90	1.05	.86	1.33
26°	1.46	.92	1.09	.87	1.44
27°	1.52	.94	1.13	.88	1.55
28°	1.58	.96	1.17	.89	1.66
29°	1.64	.98	1.21	.90	1.77
30°	1.70	1.00	1.25	.91	1.88
31°	1.76	1.03	..	..	1.99
32°	1.84	1.06	..	..	2.10
33°	1.92	1.09	..	..	2.21
34°	2.00	1.12	..	..	2.32
35°	2.08	1.15	..	..	..
36°	2.16	1.18	..	..	..
37°	2.24	1.21	..	..	..
38°	2.34	1.24	..	..	..
39°	2.44	1.27	..	..	..
40°	2.54	1.30	..	..	..
41°	2.64	1.33	..	..	..
42°	2.74	1.36	..	..	..

*Column 1—Long Beach, Seal Beach and Huntington Beach crudes, 14 t 14 to 28 degrees; Dominguez, 24 to 42 degrees. Rosecrans crude ranges from

Column 2—Whittier crude, 14 to 22 degrees; Montebello, 14 to 30 degree

Column 3—Kern River, Newhall and McKittrick, 14 to 19 degrees; Midw degrees.

Column 8—Salt Lake, 14 to 19 degrees, inclusive; Santa Maria, 14 to 30

sted by Major Purchasing Companies

TEXAS

le Pipe Line Co.

s same price as
ht per cwt.

Jan. 1	May 15
... 1 25	1 25
1 25	1 27
.... 1 25	1 29
1 25	1 31
7 Apr. 20	May 5
95	1 00

Follows market.

Mar. 12	*Apr. 7
1 12	1 05
1 14	1 05
1 16	1 05
1 18	1 05
1 20	1 05
1 22	1 07
1 24	1 09
1 26	1 11
1 28	1 13
1 30	1 15
1 32	1 17

lburg Pipe Line
(Live Oak and
llogg and Zapata
mble Oil & Re-
y Graysburg Pipe

ng $1.50; after
al Texas crudes
rd County crude
posted $1.43; on

Mar. 14	‡Aug. 23
70	60
72	60
74	60
.76	.60
78	60
80	60
82	60
84	60
86	60
88	60
90	.60
92	60

On March 8 by

nies August 24
& Refining Co.,
cept as shown.

TEXAS PANHANDLE

Hutchinson and Carson—On January 1 the Magnolia Petroleum Co. was paying $1.20 for Hutchinson County crude and $1.25 for Carson County crude. The Gulf Pipe Line Co. was paying $1.25 for these crudes. Effective March 7, each was reduced to $1.05. This schedule was adopted by the Kay County Gas Co. on March 8. On March 14 all companies posted 95 cents. On August 23 Humble posted 75 cents and this was met by other companies August 24.

Wheeler and Gray (Humble Oil & Refining Co. and Magnolia Petroleum Co. after March 14)—

	Wheeler	Gray	——Both crudes——			
	Jan. 1	Jan. 1	Feb. 22	*Mar. 7	Mar. 14	‡Aug. 24
28 to 28.9 gravity	.90	1 00	1 00	90	80	....
29 to 29.9 gravity	.95	1 05	1 04	93	.82	..
30 to 30.9 gravity	1 00	1.10	1 08	96	84	
31 to 31.9 gravity	1 05	1.15	1 12	.99	86	
32 to 32.9 gravity	1 10	1 20	1 16	1 02	88	..
33 to 33.9 gravity	1.15	1 25	1 20	1 05	.90	
34 to 34.9 gravity	1 20	1 30	1 24	1.08	92	....
35 to 35.9 gravity	1 25	1.35	1 28	1.11	94	
36 to 36.9 gravity	1 30	1 40	1 32	1 14	96	
37 to 37.9 gravity	1.35	1 45	1 36	1 17	.98	
38 to 38.9 gravity	1 40	1.50	1 40	1 20	1 00	..
39 to 39.9 gravity	1 45	1.55	1 44	1.23	1 02	..
40 to 40.9 gravity	1 50	1 60	1 48	1 26	1 04	..
41 to 41.9 gravity	1.55	1 65	1 52	1 29	1.06	
42 to 42.9 gravity	1 60	1 70	1 56	1.32	1 08	..
43 to 43.9 gravity	1 65	1.75	1 60	1.35	1 10	
44 gravity and above	1 70	1 80	1 64	1 38	1 12	..

*Magnolia Petroleum Co. started posting Gray County crude on this schedule March 8.

‡Note: On August 23 Humble Oil & Refining Co. posted Wheeler crude at flat 75 cents and was met by other companies on August 24. Gray County crude remained on gravity basis.

MEXICAN CRUDES

	Jan. 1	June 7
Panuco heavy (f.o.b. Tampico)	1 15	
Production tax Panuco	.12701	.12568
Export tax Panuco	.04928	

Note: Due to the fact that the exportation of Tuxpam light crude has become a negligible factor, prices will no longer be published.

CANADIAN FIELDS

Imperial Oil Co., Ltd.

	Jan. 1	Feb. 23	Mar. 7	Mar. 14
Oil Springs	2 68	2.48	2 31	2 18
Petrolia	2 61	2 41	2.24	2 11

CALIFORNIA

Standard Oil Co.—Union Oil Co.*

Kern River Newhall McKittrick Midway-Sunset Elk Hills Lost Hills Belridge —3—		Coyote —4—		Santa Fe Springs —5—		Coalinga —6—		Wheeler Ridge —7—		Santa Maria Ventura Salt Lake —8—	
Jan. 1	Apr. 1	Jan. 1	Apr. 1	Jan. 1	Apr. 1	Jan. 1	Apr. 1	Jan. 1	Apr. 1	Jan. 1	Apr. 1
75	75	.85	.85	....	....	.75	.75	.75	.75	.85	.85
75	75	.85	.85	....	....	.75	.75	.75	.75	.85	.85
75	75	.85	.85	....	....	.75	.75	.75	.75	.85	.85
75	75	.85	.85	....	....	.75	.75	.75	.75	.85	.85
75	75	.86	.85	....	....	.75	.75	.75	.75	.85	.85
75	75	.87	.85	....	....	.75	.75	.75	.75	.85	.85
.82	.77	.90	.85	.89	....	.79	.76	.78	.76	.90	.85
.90	.79	.98	.86	.91	.85	.86	.77	.81	.77	.97	.85
1.00	.81	1.06	.87	.94	.85	.93	.78	.85	.78	1.04	.85
1.11	.83	1.14	.88	.97	.85	1.00	.79	.89	.79	1.11	.85
1.22	.85	1.22	.89	1.02	.85	1.07	.80	.93	.80	1.18	.85
1.33	.87	1.30	.90	1.08	.86	1.14	.81	.97	.81	1.25	.86
1.44	.89	1.38	.91	1.16	.87	1.21	.83	1.01	.82	1.32	.87
1.55	.91	1.46	.92	1.24	.88	1.28	.85	1.05	.83	1.39	.88
1.66	.93	1.54	.93	1.32	.89	1.35	.87	....	....	1.46	.89
1.77	.96	1.62	.94	1.40	.91	1.42	.89	....	....	1.53	.91
1.88	.99	1.70	.95	1.48	.93	1.49	.91	....	....	1.60	.93
1.99	1.02	....	....	1.60	.95	1.56	.93	....	....	1.67	.95
2.10	1.05			1.72	.97	1.63	.95	....	....	1.73	.97
2.21	1.08			1.84	.99	1.70	.97	....	....	1.79	.99
2.32	1.11			1.96	1.01	1.77	.99	....	....	1.85	1.01
....	....			2.08	1.03	1.84	1.01	....	....	1.92	1.03
....	....			2.16	1.06	....	....	....	....	....	1.06
....	....			2.24	1.09	....	....	....	....	....	1.09
....	....			2.34	1.12	....	....	....	....	....	1.12
....	....			2.44	1.15	....	....	....	....	....	1.15
....	....			....	....	....	....	....	....	....	....
....	....			....	....	....	....	....	....	....	....
....	....			....	....	....	....	....	....	....	....

h crudes, 14 to 32 degrees, inclusive; Richfield and Fullerton, 14 to 30 degrees; Torrance and Inglewood, de ranges from 14 to 42 degrees, but only Union Oil Co. posts below 24 degrees.

4 to 30 degrees.

degrees; Midway-Sunset, Buena Vista and Elk Hills, 14 to 33 degrees; Lost Hills and Belridge, 14 to 34

laria, 14 to 30 degrees; Ventura, 14 to 35 degrees.

Average Prices fo

AVERAGE AND HIGH AN LOW PRICES FOR REF

	Av. Pr. for Yr.	High	
GASOLINE AN NAPHTHA—			
Oklahoma (Group 3):			
50-52 450 endpoint	.0655	.09	
56-58 450 endpoint	.0649	.0875	
58-60 437 endpoint (U. S. Motor)	.0667	.09	
60-62 400 endpoint	.0721	.10	
64-66 375 endpoint	.0757	.1062	
68-70 360 endpoint	.0799	.1125	
Kansas:			
58-60 437 endpoint (U. S. Motor)	.0698	.095	
North Texas:			
58-60 437 endpoint (U. S. Motor)	.0604	.09	
64-66 390 endpoint	.0737	.1037	
North Louisiana:			
56-58 437 endpoint (U. S. Motor)	.0698	.09	
Pennsylvania:			
52 Naphtha	.0875	.115	
58 Gasoline	.0900	.115	
60 Gasoline	.0974	.125	
64 Gasoline	.1051	.1325	
California:			
58-60 437 endpoint (U. S. Motor)	.0873	.105	
NATURAL GASOLINE—			
Oklahoma (Group 3):			
Grade A, 72-79.9, 375 endpoint, rec. 90%	.0585	.095	
Grade AA, 80-87.9, 375 endpoint, rec. 8	.0575	.093	
Grade B, 76-83.9, 375 endpoint, rec. 87%	.0544	.085	
Grade BB, 84-92 375 endpoint, rec. 87%	.0543	.085	
Grade C, 80-90, 375 endpoint, rec. 78	.0525	.0825	
North Texas:			
Grade A, 72-78, 375 endpoint, rec. 90%	.0585	.0962	
Grade B, 76-83.9, 375 endpoint, rec. 87	.0542	.085	
Grade C, 80-90, 375 endpoint, rec. 78	.0519	.0837	
California:			
75-85 370-390 endpoint	.0930	.125	
BURNING OILS—			
Oklahoma (Group 3):			
41-43 water white Kerosene	.0461	.0612	
42-44 water white Kerosene	.0503	.0675	
Kansas:			
41-43 water white Kerosene	.0491	.065	
North Texas:			
41-43 water white Kerosene	.0453	.0612	
Pennsylvania:			
43 Kerosene prime white	.0646	.0825	
45 Kerosene water white	.0666	.085	
California:			
38-40 water white Kerosene (high burning test)	.0583	.07	
Engine Distillate, 43-45 445 endpoint	.0677	.08	
Engine Distillate, 42-44 480 endpoint	.0693	.0775	
FUEL OILS—			
Oklahoma (Group 3):			
Below 18 Fuel Oil, bbl.	.8889	1.227	.70
24-26 Fuel Oil, bbl.	.9792	1.275	.80
32-36 Gas Oil	.0290	.045	.0237
38-40 Straw Distillate	.0353	.0525	.03
Kansas:			
24-26 Fuel Oil	1.0385	1.45	.80
North Texas:			
24-26 Fuel Oil	.9081	1.55	.75
32-36 Gas Oil	.0284	.0437	.0225
38-40 Straw Distillate	.0338	.05	.0287
North Louisiana:			
18-20 Fuel Oil	1.1226	1.50	.90
Gulf Coast:			
Fuel Oil, bbl.	1.5510	1.75	1.25
Gas Oil	.0448	.055	.0387
Pennsylvania:			
30-34 Fuel Oil	.0477	.0612	.0375
36-40 Fuel Oil	.0500	.065	.04
California:			
27-32 Distillate	.0319	.035	.0225
15-20 Fuel Oil (tidewater) Bunker	.9221	.925	.85
27 plus Diesel	1.15	1.15	1.15
LUBRICATING OILS AND WAX—			
100 vis., 3 color, 20-25 cold test	.0625	.0675	.06
180 vis., 3 color, 23-28 cold test	.0981	10	.0937
200 vis., 3 color, 23-28 cold test	.1032	.1075	.095
180 vis., 5 color, 23-28 cold test	.0945	.0975	.0912
200 vis., 5 color, 23-28 cold test	.1016	.105	.0925
240 vis., 5 color, 23-28 cold test	.1251	.13	.1225
190-200 vis. @ 210 Bright Stock	.3087	.31	.30
600 steam refined, light green	.0764	.08	.07
124-126 Wax, lb.	.0294	.0425	0.25
Pennsylvania:			
600 Pennsylvania flash	.1732	.2075	.15
Pennsylvania Bright Stock	.3326	.37	.28
Gulf Coast:			
200 vis., 3 color, pale	.1002	.11	.085
200 vis., 5 color, pale	.0821	.09	.0725
California:			
200 vis., 2½-3 color	.1058	.11	.10
200 vis., 4½-5 color, red	.0969	.095	.085
NEW YORK DOMESTIC MARKET—			
58-60 437 U. S. Motor Gasoline	.0641	.13	.08
41-43 water white Kerosene	.0708	.105	.065
Gas Oil, 28 plus	.0573	.0625	.055
*Diesel Oil, 28-30, bbl.	2.2329	2.40	2.00
*Bunker Oil, 14-16 bbl.	1.6506	1.75	1.35
28 pale Paraffin Oil	.0743	.08	.07
250 red Paraffin Oil	.1154	.125	.105
120-122 a.m.p. Wax, lb.	.0429	.0562	.0387
Amber Petrolatum	.0354	.0337	.0325

*Lighterage charge, 6.5 cents extra.

NEW YORK (Bayonne) EXPORT MARKET			
58-60 437 U. S. Motor Gasoline, cases	.2494	.270	.239
Kerosene, standard white, cases	.1701	.1915	.1615
Kerosene, water white, cases	.1771	.2065	.1715
600 steam refined Cylinder Stock, bbls.	.1708	.30	.165
Light 135 Bright Stock	.4289	.46	.40
Dark 135 Bright Stock	.4093	.44	.38
LOS ANGELES EXPORT PRICES—			
Kerosene, water white	.0657	.0675	.04
Gasoline, 53-55 437 endpoint	.0672	.0875	.0575

Posted by Major Purchasing Companies

TERN TEXAS

nd Humble Pipe Line Co

Co. posts same price as nts freight per cwt.

	Jan.1	May 15
	1 25	1 25
	1 25	1 27
	1 25	1 29
	1 25	1 31

4	Apr. 7	Apr. 20	May 5
	1 00	95	1 00

sted price. Follows market.

3	Mar. 7	Mar.12	*Apr.7
	1 23	1.12	1.05
	1.26	1 14	1 05
	1 29	1 16	1.05
	1 32	1 18	1 05
	1 35	1 20	1 05
	1.38	1 22	1 07
	1 41	1 24	1 09
	1 44	1 26	1.11
	1 47	1.28	1.13
	1.50	1 30	1 15
	1 53	1 32	1.17

and Grayburg Pipe Line Calliham (Live Oak and bb, Jim Hogg and Zapata Co., Humble Oil & Re- posted by Grayburg Pipe ining Co.

was paying $1.50; after st Central Texas crudes. or Howard County crude mpanies posted $1.43; on

†Mar. 7	Mar. 14	‡Aug 23
80	70	60
83	72	60
.86	74	60
.89	.76	.60
92	78	63
95	80	60
98	82	60
1.01	84	60
1 04	86	60
1 07	88	.60
1 10	90	.60
1.13	92	60

Line Co. On March 8 by

companies August 24. hle Oil & Refining Co., Co., except as shown.

TEXAS PANHANDLE

Hutchinson and Carson—On January 1 the Magnolia Petroleum Co. was paying $1.20 for Hutchinson County crude and $1.25 for Carson County crude. The Gulf Pipe Line Co. was paying $1.25 for these crudes. Effective March 7, each was reduced to $1.05. This schedule was adopted by the Kay County Gas Co. on March 8. On March 14 all companies posted 95 cents. On August 23 Humble posted 75 cents and this was met by other companies August 24.

Wheeler and Gray (Humble Oil & Refining Co. and Magnolia Petroleum Co. after March 14)—

	Wheeler	Gray	Both crudes			
	Jan.1	Jan.1	Feb.22	*Mar.7	Mar.14	‡Aug 24
28 to 28.9 gravity	.90	1 00	1 00	90	80	
29 to 29.9 gravity	.95	1 05	1 04	93	.82	
30 to 30.9 gravity	1 00	1.10	1 08	96	84	
31 to 31.9 gravity	1 05	1.15	1 12	.99	86	
32 to 32.9 gravity	1 10	1 20	1 16	1 02	88	
33 to 33.9 gravity	1.15	1 25	1 20	1 05	90	
34 to 34.9 gravity	1 20	1 30	1 24	1.08	92	
35 to 35.9 gravity	1 25	1.35	1 28	1.11	94	
36 to 36.9 gravity	1 30	1 40	1 32	1 14	96	
37 to 37.9 gravity	1.35	1 45	1 36	1 17	98	
38 to 38.9 gravity	1 40	1.50	1 40	1 20	1 00	
39 to 39.9 gravity	1 45	1.55	1 44	1.23	1 02	
40 to 40.9 gravity	1 50	1 60	1 48	1 26	1 04	
41 to 41.9 gravity	1.55	1 65	1 52	1 29	1.06	
42 to 42.9 gravity	1 60	1 70	1 56	1.32	1 08	
43 to 43.9 gravity	1 65	1.75	1 60	1.35	1 10	
44 gravity and above	1 70	1 80	1 64	1 38	1 12	

*Magnolia Petroleum Co. started posting Gray County crude on this schedule March 8.

†Note: On August 23 Humble Oil & Refining Co. posted Wheeler crude at flat 75 cents and was met by other companies on August 24. Gray County crude remained on gravity basis.

MEXICAN CRUDES

	Jan. 1	June 7
Panuco heavy (f.o.b. Tampico)	1 15	
Production tax Panuco	.12701	.12568
Export tax Panuco	.01928	

Note: Due to the fact that the exportation of Tuxpam light crude has become a negligible factor, prices will no longer be published.

CANADIAN FIELDS

Imperial Oil Co., Ltd.

	Jan.1	Feb.23	Mar.7	Mar.14
Oil Springs	2 68	2.48	2 31	2 18
Petrolia	2 61	2 41	2.24	2 11

CALIFORNIA

Standard Oil Co.—Union Oil Co.*

ittier Habra Rebello	Kern River Newhall-McKittrick Midway-Sunset Elk Hills Lost Hills Belridge		Coyote		Santa Fe Springs		Coalinga		Wheeler Ridge		Santa Maria Ventura Salt Lake	
2	3		4		5		6		7		8	
Apr. 1	Jan. 1	Apr. 1	Jan. 1	Apr. 1	Jan. 1	Apr. 1	Jan. 1	Apr. 1	Jan. 1	Apr. 1	Jan. 1	Apr. 1
.85	.75	.75	.85	.85	...	...	.75	.75	.75	.75	.85	.85
.85	.75	.75	.85	.85	...	...	.75	.75	.75	.75	.85	.85
.85	.75	.75	.85	.85	...	...	.75	.75	.75	.75	.85	.85
.85	.75	.75	.85	.85	...	...	.75	.75	.75	.75	.85	.85
.85	.75	.75	.86	.85	...	...	.75	.75	.75	.75	.85	.85
.85	.75	.75	.87	.85	...	...	.75	.75	.75	.75	.85	.85
.85	.82	.77	.90	.85	.89	...	.79	.76	.78	.76	.90	.85
.85	.90	.79	.98	.86	.91	.85	.86	.77	.81	.77	.97	.85
.85	1.00	.81	1.06	.87	.94	.85	.93	.78	.85	.78	1.04	.85
.85	1.11	.83	1.14	.88	.97	.85	1.00	.79	.89	.79	1.11	.85
.85	1.22	.85	1.22	.89	1.02	.85	1.07	.80	.93	.80	1.18	.85
.86	1.33	.87	1.30	.90	1.08	.86	1.14	.81	.97	.81	1.25	.86
.87	1.44	.89	1.38	.91	1.16	.87	1.21	.83	1.01	.82	1.32	.87
.88	1.55	.91	1.46	.92	1.24	.88	1.28	.85	1.05	.83	1.39	.88
.89	1.66	.93	1.54	.93	1.32	.89	1.35	.87	...	...	1.46	.89
.90	1.77	.96	1.62	.94	1.40	.91	1.42	.89	...	...	1.53	.91
.91	1.88	.99	1.70	.95	1.48	.93	1.49	.91	...	...	1.60	.93
...	1.99	1.02	...	...	1.60	.95	1.56	.93	...	...	1.67	.95
...	2.10	1.05	...	...	1.72	.97	1.63	.95	...	...	1.73	.97
...	2.21	1.08	...	...	1.84	.99	1.70	.97	...	...	1.79	.99
...	2.32	1.11	...	...	1.96	1.01	1.77	.99	...	...	1.85	1.01
...	...	...	...	...	2.08	1.03	1.84	1.01	...	...	1.92	1.03
...	...	...	...	...	2.16	1.06	...	...	...	...	...	1.06
...	...	...	...	...	2.24	1.09	...	...	...	...	...	1.09
...	...	...	...	...	2.34	1.12	...	...	...	...	...	1.12
...	...	...	...	...	2.44	1.15	...	...	...	...	...	1.15
...	...	...	...	...	...	...	...	...	...	...	...	...
...	...	...	...	...	...	...	...	...	...	...	...	...

Beach crudes, 14 to 32 degrees, inclusive; Richfield and Fullerton, 14 to 30 degrees; Torrance and Inglewood, crude ranges from 14 to 42 degrees, but only Union Oil Co. posts below 24 degrees.
lo, 14 to 30 degrees.
to 19 degrees; Midway-Sunset, Buena Vista and Elk Hills, 14 to 33 degrees; Lost Hills and Belridge, 14 to 34

a Maria, 14 to 30 degrees; Ventura, 14 to 35 degrees.

Average P

AVERAGE AND HIGH AN LO

GASOLINE AN NAPHTHA—
Oklahoma (Group 3):
50-52 450 endpoint
56-58 450 endpoint
58-60 437 endpoint (U. S. Motor)
60-62 400 endpoint
64-66 375 endpoint
68-70 360 endpoint
Kansas:
58-60 437 endpoint (U. S. Motor)
North Texas:
58-60 437 endpoint (U. S. Motor)
64-66 390 endpoint
North Louisiana:
56-58 437 endpoint (U. S. Motor)
Pennsylvania:
52 Naphtha
58 Gasoline
60 Gasoline
64 Gasoline
California:
58-66 437 endpoint (U. S. Motor)

NATURAL GASOLINE—
Oklahoma (Group 3):
Grade A, 72-79.9 375 endpoint, rec. 90%
Grade AA, 80-87.9, 375 endpoint, rec. 80
Grade B, 76-83.9 375 endpoint, rec. 85%
Grade BB, 84-92 375 endpoint, rec. 85%
Grade C, 80-90, 375 endpoint, rec. 78%
North Texas:
Grade A, 72-78, 375 endpoint, rec. 90%
Grade B, 76-83.9, 375 endpoint, rec. 85%
Grade C, 80-90, 375 endpoint, rec. 78%
California:
75-85 370-390 endpoint

BURNING OILS—
Oklahoma (Group 3):
41-43 water white Kerosene
42-44 water white Kerosene
Kansas:
41-43 water white Kerosene
North Texas:
41-43 water white Kerosene
Pennsylvania:
43 Kerosene prime white
45 Kerosene water white
California:
38-40 water white Kerosene (high burning test)
Engine Distillate, 43-45 445 endpoint
Engine Distillate, 42-44 480 endpoint

FUEL OILS—
Oklahoma (Group 3):
Below 18 Fuel Oil, bbl.
24-26 Fuel Oil, bbl.
32-36 Gas Oil
38-40 Straw Distillate
Kansas:
24-26 Fuel Oil
North Texas:
24-26 Fuel Oil
32-36 Gas Oil
38-40 Straw Distillate
North Louisiana:
18-20 Fuel Oil
Gulf Coast:
Fuel Oil, bbl.
Gas Oil
Pennsylvania:
30-34 Fuel Oil
36-40 Fuel Oil
California:
27-32 Distillate
15-20 Fuel Oil (Tidewater) Bunker
27 plus Diesel

LUBRICATING OILS AND WAX—
100 vis., 3 color, 20-25 cold test
180 vis., 3 color, 23-28 cold test
200 vis., 3 color, 23-28 cold test
180 vis., 5 color, 23-28 cold test
200 vis., 5 color, 23-28 cold test
240 vis., 5 color, 23-28 cold test
190-200 vis. 66 210 Bright Stock
600 steam refined, light green
124-126 Wax, lb.
Pennsylvania:
600 Pennsylvania flash
Pennsylvania Bright Stock
Gulf Coast:
200 vis., 3 color, pale
200 vis., 5 color, pale
California:
200 vis., 2½-3 color
200 vis., 4½-5 color, red

NEW YORK DOMESTIC MARKET—
58-60 437 U. S. Motor Gasoline
41-43 water white Kerosene
Gas Oil, 28 plus
*Diesel Oil, 28-30, bbl.
*Bunker Oil, 14-16 bbl.
28 pale Paraffin Oil
250 red Paraffin Oil
120-122 a.m.p. Wax, lb.
Amber Petrolatum

*Lightcrage charge, 6.5 cents extra.

NEW YORK (Bayonne) EXPORT MARK
58-60 437 U. S. Motor Gasoline, cases
Kerosene, standard white, cases
Kerosene, water white, cases
600 steam refined Cylinder Stock, bbls.
Light 135 Bright Stock
Dark 135 Bright Stock

LOS ANGELES EXPORT PRICES—
Kerosene, water white
Gasoline, 53-55 437 endpoint

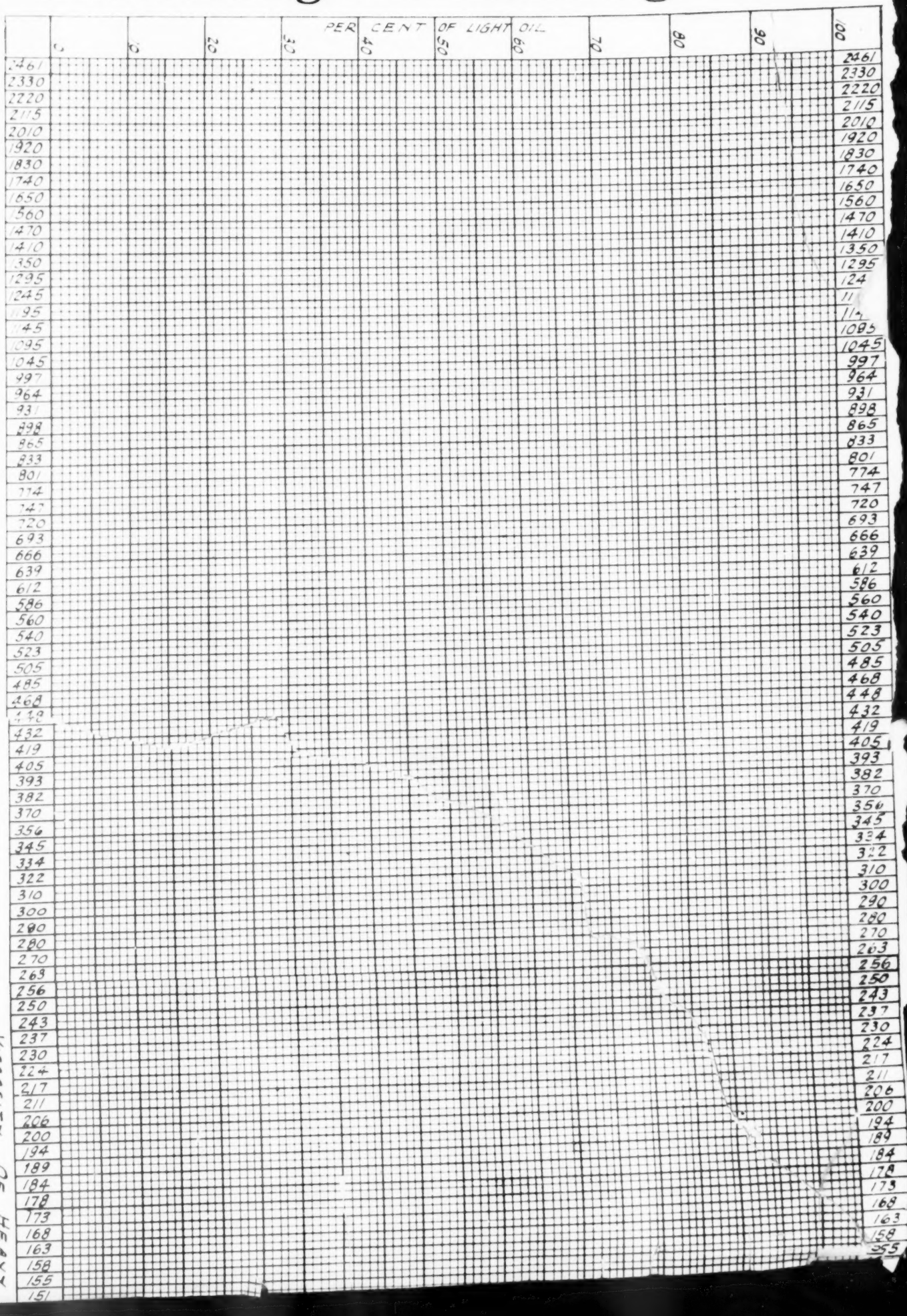
e Prices for the Years 1927, 1926 and 192

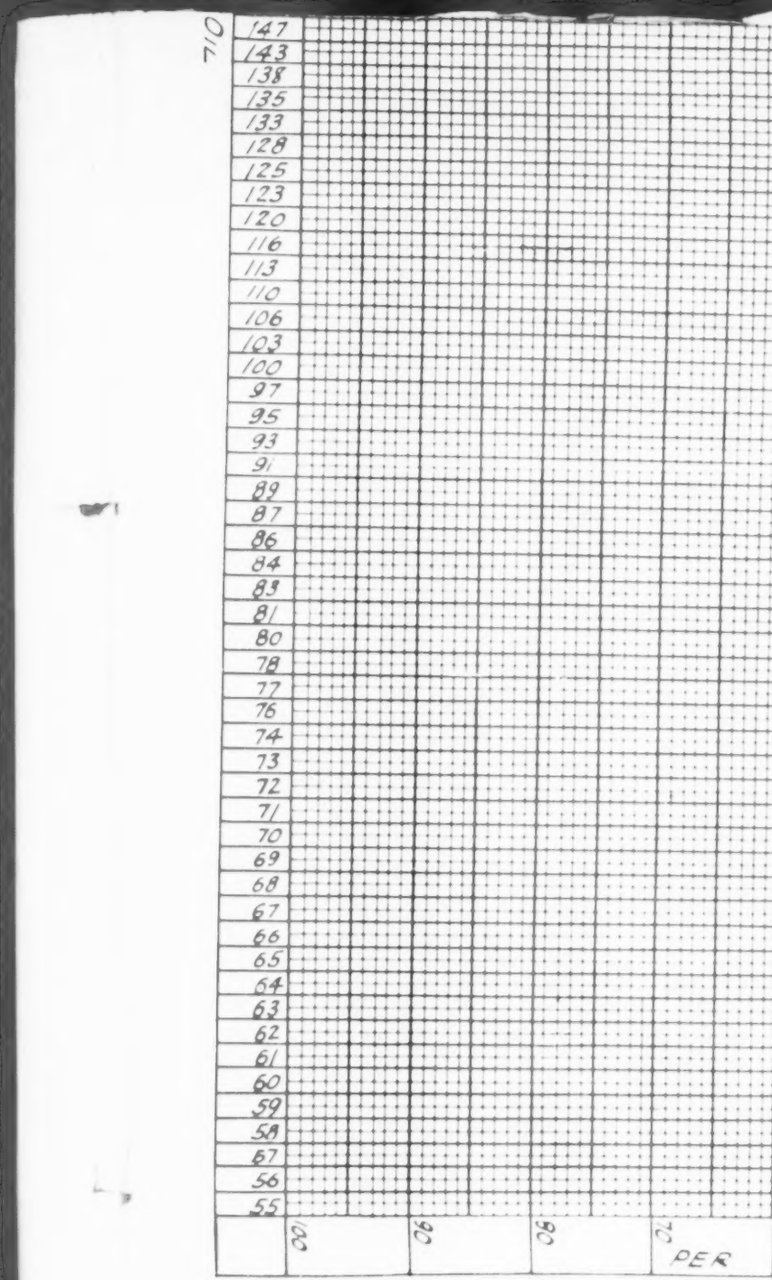
I AN LOW PRICES FOR REFINED PRODUCTS, BASED ON LOW WEEKLY QUOTATIONS OF THE OIL AND GAS JOU

(Prices Given in Cents per Gallon Unless Otherwise Noted)

	1927					1926					1925				
	Av. Pr. for Yr.	High	Low	Average Price 1st. 6 Mo.	Average Price 2nd. 6 Mo.	Av. Pr. for Yr.	High	Low	Average Price 1st. 6 Mo.	Average Price 2nd. 6 Mo.	Av. Pr. for Yr.	High	Low	Average Price 1st. 6 Mo.	Average Price 2nd. 6 Mo.
HA—	.0655	.09	.0562	.0709	.0601	.0985	.1125	.085	.0982	.0988	.0977	.125	.0725	.1034	.0915
	.0649	.0875	.0562	.0699	.0599	.0994	.1175	.0825	.1012	.0975	.1012	.13	.075	.1069	.0954
	.0667	.09	.0575	.0722	.0613	.1031	.12	.0875	.1053	.1009	.1055	.1375	.0775	.1107	.1002
	.0721	.10	.0625	.0781	.0661	.1122	.1225	.10	.1159	.1085	.1176	.1475	.09	.1248	.1153
	.0757	.1062	.065	.0826	.0688	.1176	.13	.105	.1229	.1124	.1310	.16	.11	.1371	.1253
	.0799	.1125	.0675	.0881	.0717	.124	.135	.1125	.1301	.1179	.1384	.1625	.1125	.1416	.1352
	.0698	.095	.0625	.0751	.0644	.1068	.125	.09	.1088	.1048	.1075	.135	.08	.1139	.1028
	.0604	.09	.0575	.0720	.0588	.1024	.1187	.0862	.1046	.1001	.1056	.135	.08	.1111	.1000
	.0737	.1037	.0625	.0804	.0670	.1155	.13	.1012	.1215	.1095	.1289	.1525	.10	.135	.1227
	.0658	.09	.0625	.0739	.0657	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
	.0875	.115	.0737	.0968	.0782	.1175	.135	.1125	.1185	.1205	.1276	.145	.1075	.1323	.1217
	.0900	.115	.0775	.0986	.0814	.1273	.145	.115	.1295	.1252	.1318	.1575	.1075	.139	.1271
	.0974	.125	.0825	.1063	.0885	.1339	.1475	.125	.1365	.1313	.1482	.1625	.12	.1465	.1499
	.1051	.1325	.0925	.1147	.0954	.1437	.1525	.1325	.146	.1413	.1584	.1725	.145	.1584	.1584
	.0873	.105	.08	.0863	.0883	.1134	.125	.09	.1192	.1077	.1017	.11	.09	.1057	.0977
rec. 90%	.0585	.095	.045	.0612	.0558	.0945	.1062	.0825	.0963	.0927	.1202	.155	.09	.1154	.1246
rec. 8	.0575	.095	.045	.06	.0549	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
rec. 85%	.0544	.085	.0412	.0575	.0512	.0887	.105	.0787	.089	.0885	.1158	.155	.08	.1102	.1215
rec. 83%	.0543	.085	.04	.0575	.0510	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
e 78°	.0525	.0825	.035	.0562	.0489	.086	.1025	.075	.0859	.0861	.112	.155	.0775	.1057	.1182
rec. 90%	.0585	.0962	.045	.0612	.0558	.0959	.1075	.0825	.099	.0927	.1199	.1575	.1875	.1149	.1248
rec. 85	.0542	.085	.0412	.0575	.0508	.0926	.105	.0787	.0963	.0888	.1158	.1575	.185	.1094	.1219
e 78°	.0519	.0837	.035	.055	.0487	.0866	.1025	.075	.0865	.0867	.1186	.1575	.0775	.1057	.1121
	.0930	.125	.07	.1023	.0838	.1465	.17	.11	.156	.135	.1281	.15	.11	.128	.1278
	.0461	.0612	.04	.0486	.0426	.0727	.105	.0525	.0729	.0725	.0445	.0512	.0387	.0428	.0463
	.0503	.0675	.0437	.0541	.0465	.0769	.1075	.0562	.0761	.0776	.0479	.055	.0425	.0457	.0502
	.0491	.065	.0425	.0532	.0450	.077	.1075	.0575	.0764	.0776	.0467	.055	.0425	.0461	.047
"	.0453	.0612	.0362	.0486	.0419	.0728	.1025	.0525	.0733	.0724	.0445	.0537	.0387	.0428	.0452
	.0646	.0825	.055	.0692	.0600	.0885	.12	.0725	.0886	.0895	.0656	.075	.06	.0679	.0634
	.0666	.085	.0575	.0712	.0619	.0921	.125	.0737	.093	.0912	.0681	.0775	.0625	.0693	.0671
n kerosene test)	.0583	.07	.05	.0634	.0531	.0745	.09	.07	.0759	.0731	.075	.075	.075	.075	.075
point	.0677	.08	.0425	.0697	.0656	.0919	.11	.0775	.0960	.0879	.0774	.085	.065	.08	.0746
point	.0693	.0775	.04	.0655	.0730	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
	.8889	1.225	.70	1.0182	.7596	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
	.9792	1.275	.80	1.0980	.8294	1.3072	1.49½	1.20	1.2865	1.3279	1.0908	1.30	.85	1.0913	1.0904
	.0299	.045	.0237	.0341	.0257	.0419	.045	.035	.0395	.0427	.0327	.0375	.0275	.0325	.0326
	.0353	.0525	.03	.0391	.0315	.0473	.055	.0375	.0426	.052	.0368	.04	.03	.0349	.0385
	1.0685	1.45	.80	1.2211	.8558	1.3919	1.60	1.25	1.3587	1.425	1.1812	1.50	.90	1.1519	1.1702
	.9981	1.55	.75	1.1902	.8010	1.3904	1.55	1.20	1.3375	1.4433	1.1765	1.55	.90	1.1471	1.1711
	.0284	.0437	.0225	.0333	.0234	.0401	.045	.035	.0384	.0418	.0328	.04	.0275	.0328	.0328
	.0328	.05	.0287	.0375	.0300	.0457	.055	.0375	.0406	.0509	.0349	.0412	.0312	.0354	.0363
	1.1226	1.30	.90	1.1798	1.0653	1.2346	1.35	1.10	1.199	1.2702	1.0789	1.40	.90	1.1288	1.0288
	1.5510	1.75	1.25	1.6115	1.4904	1.7059	1.75	1.50	1.6617	1.75	1.5872	1.70	1.45	1.6021	1.5723
	.0448	.055	.0287	.1487	.0408	.0532	.0562	.0475	.0511	.0554	.0477	.0525	.045	.0479	.0475
	.0477	.0612	.0375	.0547	.0407	.0591	.065	.055	.0587	.0595	.053	.0625	.0425	.0534	.0529
	.0500	.065	.04	.0569	.0433	.0636	.07	.0625	.0636	.064	.0593	.07	.0525	.0616	.057
	.0319	.035	.0225	.0338	.0299	.0385	.045	.035	.0406	.0364	.0402	.045	.0375	.0405	.04
	.9221	.925	.85	.8961	.948	.9813	1.00	.925	1.00	.9625	1.4068	1.60	1.00	1.5344	1.2154
et	1.15	1.15	1.15	1.15	1.15	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
D WAX—	.0625	.0675	.06	.0642	.0608	.0637	.065	.0475	.0625	.065	.0617	.08	.04	.07	.0534
	.0981	.10	.0937	.0988	.0973	.101	.10½	.0925	.1008	.105	.1031	.11	.085	.1038	.1024
	.1032	.1075	.095	.1061	.1002	.1072	.11¼	.10¼	.1108	.1075	.1139	.12	.10	.1154	.1124
	.0945	.0975	.0912	.0960	.0929	.0968	.0975	.0875	.096	.0925	.1015	.105	.075	.0981	.1049
	.1016	.105	.0925	.1025	.1006	.1068	.1075	.0975	.106	.1075	.1085	.115	.09	.1096	.1074
	.1251	.13	.1225	.1268	.1233	.1304	.135	.125	.1308	.13	.1414	.15	.12	.1435	.1396
	.3087	.31	.30	.31	.3073	.3067	.33	.30	.3034	.31	.3052	.31	.29	.3058	.3046
	.0764	.08	.07	.08	.0727	.0806	.085	.08	.0813	.08	.0793	.10	.065	.0838	.0746
	.0294	.0425	0.25	.0334	.0254	.0471	.05	.0412	.0482	.046	.0516	.055	05	.0509	.0524
	.1752	.2075	.15	.1873	.1631	.2419	.27	.205	.2667	.2248	.2852	.395	.245	.3262	.2442
	.3326	.37	.28	.3502	.3149	.3954	.415	.37	.3885	.4023	.3824	.41	.365	.3887	.389
	.1002	.11	.085	.1071	.0932	.1135	.125	.11	.1146	.1123	.1318	.15	.115	.1412	.1225
	.0821	.09	.0725	.0871	.0771	.0971	.11	.095	.0981	.0962	.1165	.135	.10	.1262	.1069
	.1058	.11	.10	.1081	.1025	.1298	.135	.105	.135	.1246	.1523	.155	.135	.1513	.1534
	.0909	.095	.085	.0933	.0885	.1148	.12	.09	.12	.1096	.1373	.14	.12	.1362	.1385
MARKET—	.0941	.13	.08	.1050	.0832	.134	.15	.12	.1377	.1304	.1465	.18	.12	.1549	.1384
	.0768	.105	.065	.0822	.0713	.0948	.11	.07	.0864	.1032	.....	.....	.....	.....	.....
	.0573	.0625	.055	.0596	.055	.0836	.0675	.055	.0612	.066	.....	.....	.....	.....	.....
	2.2269	2.40	2.00	2.3462	2.1077	2.4056	.50	2.10	2.3188	2.4923	2.275	2.70	.210	2.4135	2.1386
	1.6366	1.75	1.35	1.7308	1.5423	1.74	.75	1.65	1.75	1.75	1.725	1.80	1.65	1.7826	1.669
	.0743	.08	.07	.0763	.0722	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
	.1154	.125	.105	.1203	.1104	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
	.0429	.0562	.0387	.0467	.0391	.0586	.0612	.0575	.0586	.0586	.0612	.0625	.0587	.0614	.0611
	.0334	.0337	.0325	.0324	.0333	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
s extra.															
PORT MARKET	.2494	.279	.239	.2561	.2427	.2933	.294	.2715	.2936	.293	.2881	.3065	.2665	.294	.2819
eases	.1701	.1915	.1615	.1734	.1667	.189	.1965	.179	.1855	.1925	.1674	.179	.164	.1738	.1671
	.1771	.2065	.1715	.1855	.1767	.2011	.2115	.194	.1952	.2071	.1779	.194	.1704	.1778	.1776
k, bbls.	.1798	.20	.165	.1908	.1687	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
	.4289	.46	.40	.4423	.4154	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
	.4083	.44	.38	.4223	.3942	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
PRICES—	.0457	.0575	.04	.0489	.0426	.0535	.055	.05	.0523	.0546	.0518	.055	.05	.0521	.0515
	.0672	.0875	.0575	.0735	.0608	.096	.11	.08	.0967	.0953	.075	.1075	.07	.1014	.0885

Lubricating Oil Blending Chart



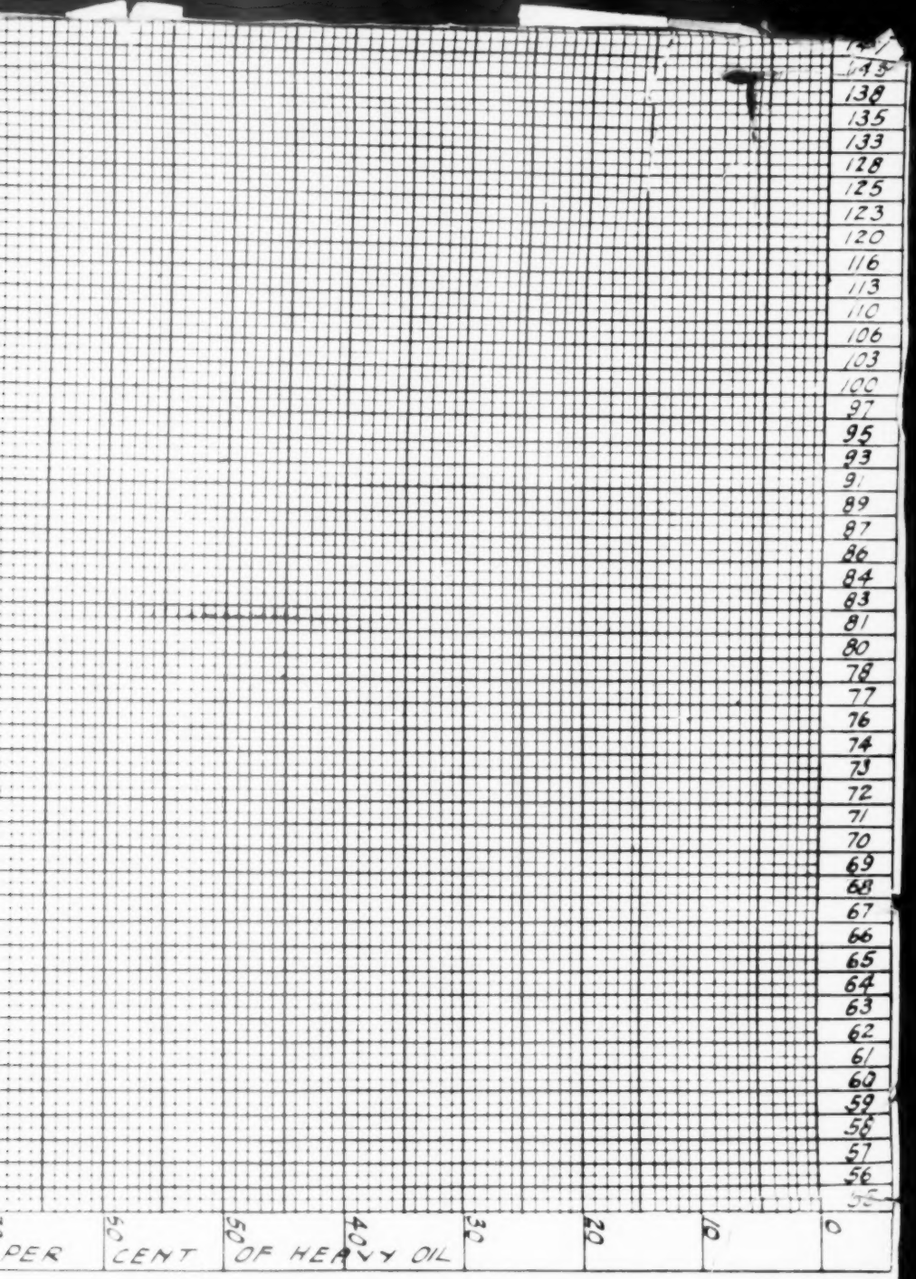


By use of this chart two lubricating oils of d
product. The quantity of each of the oils to
ity of each of the oils is known. As an exar
a 500 viscosity lub to make a 300 viscosity pr
the 500 viscosity line along the left margin
the other end of the ruler so the same edge
the ruler is in place to show the percentage
oil to make a product of any intermediate visc

If the desired viscosity of the blend is 300 th
determines the percentage of each oil to be
chart, under the heading "Percentage of Lig
section to the space marked "Percentage of
oil blended with 48 per cent of the heavy oil

The chart applies to oils at 100 degrees Fah
blend at any temperature providing the visc
temperature as the product. For instance, i
blended from two oils, one having a viscosity
500 at 100 degrees Fahrenheit, the viscosity
and naturally, the figures used will be lower t
Fahrenheit.

Results on the standard Saybolt Universal v

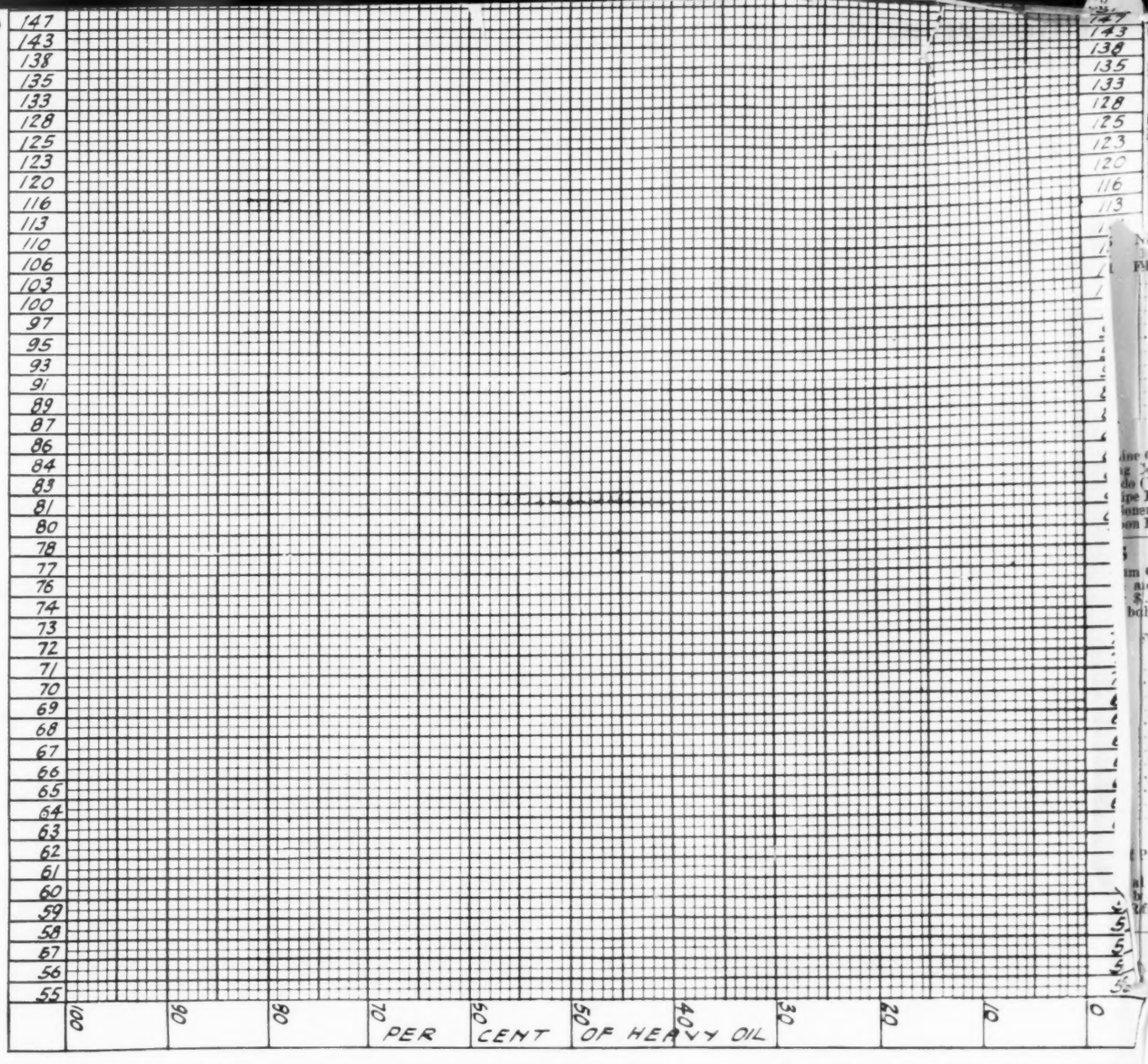


oils of different viscosities may be blended to make an intermediate
e oils to be blended may be read directly from the chart when the viscos-
s an example, a compounder may want to blend a 200 viscosity lub with
cosity product. By placing a ruler across the chart so the edge intersects
margin of the graph marked "Viscosity of Heavy Oil" and then adjust
ne edge cuts the right-hand margin at 200, the viscosity of the light oil,
rcentage of the light oil to be blended with the 500 viscosity oil or heavy
diate viscosity.

is 300 the point where the ruler cuts the horizontal 300 viscosity line
oil to be blended and the answer may be read directly at the top of the
ge of Light Oil," by projecting a vertical line from the point of inter-
ntage of Light Oil." This example shows 52 per cent of the 200 viscosity
heavy oil will make a blended oil of 300 viscosity.

grees Fahrenheit but will serve as a good criterion of the proportion to
the viscosity of the blended oils are determined and used for the same
nstance, if an oil of 200 viscosity at 150 degrees Fahrenheit is to be
viscosity of 100 at 100 degrees Fahrenheit and the other a viscosity of
viscosity of each of these must be determined at 150 degrees Fahrenheit
be lower than the 100 and 500 given as their viscosities at 100 degrees

niversal viscosimeter are taken as the basis of this chart.



By use of this chart two lubricating oils of different viscosities may be blended to make an intermediate product. The quantity of each of the oils to be blended may be read directly from the chart when the viscosity of each of the oils is known. As an example, a compounder may want to blend a 200 viscosity lub with a 500 viscosity lub to make a 300 viscosity product. By placing a ruler across the chart so the edge intersects the 500 viscosity line along the left margin of the graph marked "Viscosity of Heavy Oil" and then adjust the other end of the ruler so the same edge cuts the right-hand margin at 200, the viscosity of the light oil. the ruler is in place to show the percentage of the light oil to be blended with the 500 viscosity oil or heavy oil to make a product of any intermediate viscosity.

If the desired viscosity of the blend is 300 the point where the ruler cuts the horizontal 300 viscosity lin determines the percentage of each oil to be blended and the answer may be read directly at the top of th chart, under the heading "Percentage of Light Oil," by projecting a vertical line from the point of inter section to the space marked "Percentage of Light Oil." This example shows 52 per cent of the 200 viscosit oil blended with 48 per cent of the heavy oil will make a blended oil of 300 viscosity.

The chart applies to oils at 100 degrees Fahrenheit but will serve as a good criterion of the proportion t blend at any temperature providing the viscosity of the blended oils are determined and used for the sam temperature as the product. For instance, if an oil of 200 viscosity at 150 degrees Fahrenheit is to b blended from two oils, one having a viscosity of 100 at 100 degrees Fahrenheit and the other a viscosity 500 at 100 degrees Fahrenheit, the viscosity of each of these must be determined at 150 degrees Fahrenhe and naturally, the figures used will be lower than the 100 and 500 given as their viscosities at 100 degre Fahrenheit.

Results on the standard Saybolt Universal viscosimeter are taken as the basis of this chart.

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Refinery Section Starts on Page 246

Price Increase Talk Gaining Ground

Highest daily average estimated total production in 1927, week ended July 30 2,587,105 bbls. Lowest in 1927, Jan. 22, 2,360,789 bbls.

Despite Big Production in Sight, Withdrawals From Storage and Spring Demand May Result in Readjustment

By Andrew M. Rowley

Highest daily average estimated light oil production in 1927, week ended July 30 2,102,385 bbls. Lowest in 1927, Jan. 1, 1,790,729 bbls

Opinion seems to be more general that crude oil prices in the Mid-Continent area will be increased within 60 days. Many operators feel the present schedule should be maintained as long as possible in order to permit the industry to utilize some of the crude in storage and to prevent any extensive drilling campaign in the face of the big production still in sight. On the other hand, the crude in storage can hardly be disposed of at present prices without a loss to owners and it is believed owners of this crude will be reluctant to make withdrawals on the present schedule. Some companies in the Mid-Continent area already are withdrawing crude from storage and this condition, as far as Oklahoma, Kansas and North Texas are concerned, will become more pronounced as the spring demand increases and the output of crude with a high gasoline content, declines.

While the large purchasing companies may be reluctant to increase prices at a time when production is still at a high level and when all indications point to a continued big output, the demand for high gravity crude is increasing and shipments are exceeding runs in a number of instances. All past history of the industry shows such a situation inevitably leads to a readjustment of the crude price structure, although at this time it is felt conditions later in the year probably would be better if such a readjustment is postponed as long as possible.

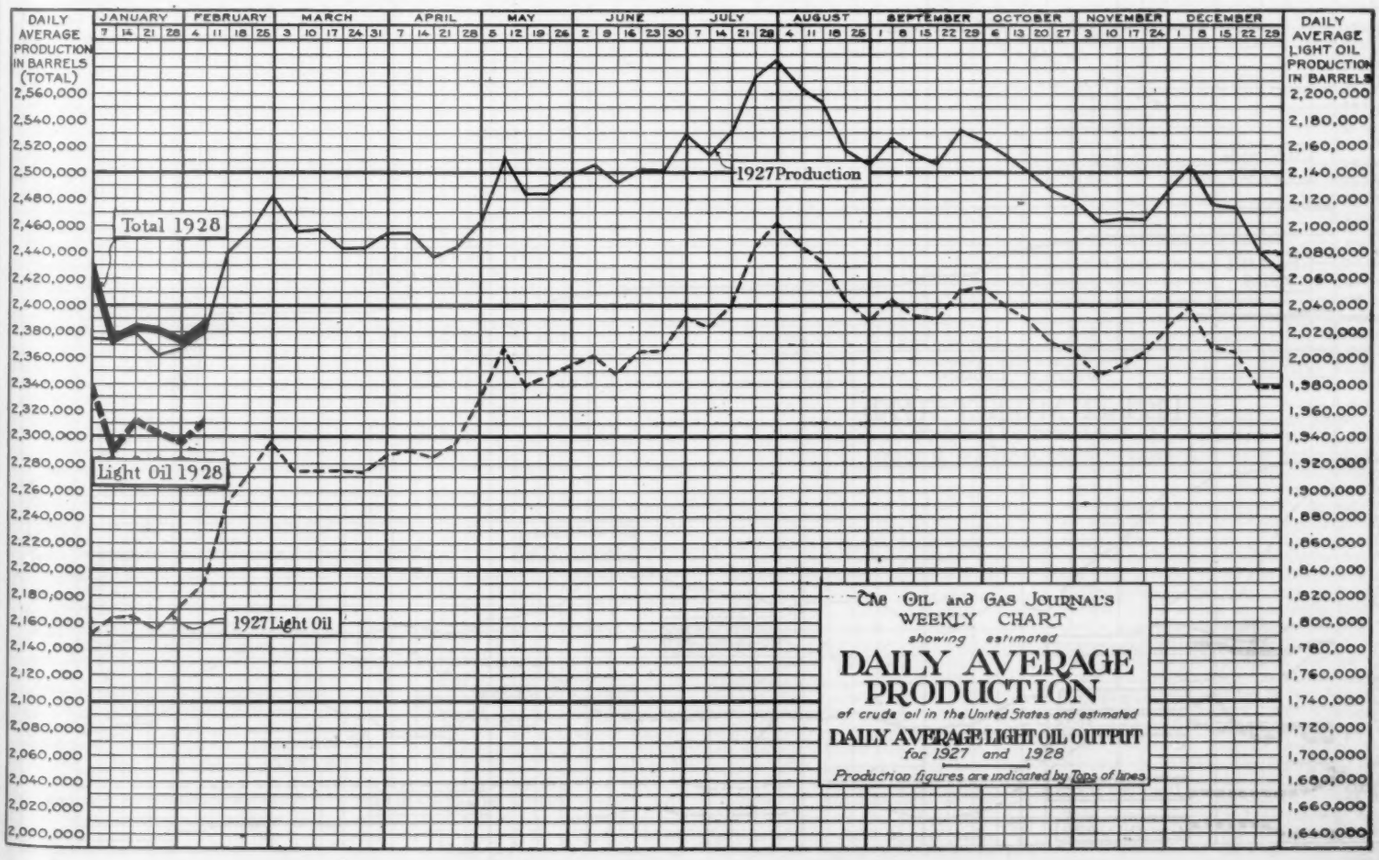
The situation is unique in the fact it is conceded no material decline in production is to be expected within the near future—in fact, there is more likely to be some increase until during the summer months due to operations which will be carried on in the Greater Seminole area in Oklahoma as soon as the drilling curtailment arrangement ends March 1; to the completion of additional facilities for handling West Texas crude; and to development around recent discoveries in California.

PRODUCTION IN THE UNITED STATES

Estimated daily average production of light and heavy gravity oil in the United States for week ended February 4, and a comparison with the previous week follows:

	Feb. 4		Jan. 28	
	Light	Heavy	Light	Heavy
Oklahoma—				
Tonkawa	15,380	.....	15,002	.....
Burbank	38,315	.....	37,731	.....
Other Osage Fields	29,585	.....	29,620	.....
Cushing and Shamrock	20,980	.....	21,015	.....
Bristow and Eastern Bristow	24,555	.....	24,510	.....
Cromwell	10,250	.....	10,335	.....
Garber	9,890	.....	9,900	.....
Blackwell-Braman	8,770	.....	8,400	.....
Seminole	324,710	.....	332,570	.....
Wewoka	8,535	.....	8,500	.....
Northern Miscellaneous	116,280	.....	113,297	.....
Southern Fields	60,360	.....	58,970	.....
Total Oklahoma	667,710	.....	669,850	.....
North Louisiana	37,410	8,180	37,415	8,280
Arkansas	20,995	69,165	21,000	69,115
North Central Texas	130,002	.....	129,174	.....
West Texas	288,837	.....	285,594	.....
Texas Panhandle	80,605	.....	75,610	.....
East Central Texas	25,858	.....	25,864	.....
Kansas	110,585	.....	110,280	.....
Total Mid-Continent Area	1,361,802	77,345	1,354,787	77,395
Gulf Coast	.....	117,561	.....	120,794
Southwest Texas	.....	26,614	.....	26,613
Eastern	110,000	.....	111,000	.....
Rocky Mountain Area	79,537	.....	72,144	.....
California—				
Santa Fe Springs	38,500	.....	38,500	.....
Long Beach	115,000	.....	113,500	.....
Torrance	3,000	17,000	3,000	17,000
Huntington Beach	59,500	.....	59,500	.....
Dominguez	13,000	.....	13,250	.....
Rosecrans	8,000	.....	8,150	.....
Inglewood	19,250	12,000	19,250	12,000
Ventura Avenue	53,000	.....	53,000	.....
Seal Beach	41,000	.....	40,500	.....
Remainder of State	52,000	184,000	52,500	184,000
Total California	402,250	213,000	401,150	213,000
Total United States	1,953,589	434,520	1,939,081	437,802
Grand Total	2,388,109		2,376,883	

Total Increase, 11,226 Bbls.; Light Oil Increase, 14,508 Bbls.



Oklahoma Refined Market Stronger

Prices on Most Products Steady With Distress Material Removed. Less Demand for Natural Gasolines and Prices Lower

By W. T. Ziegenhain

The Oklahoma refiners continue to strengthen their position for an advancement of the refined oil market and all distress material is removed. Gasoline continued to be plentiful, but there was no evidence of shading quotations to get the business. Natural gasolines failed to continue the general advance started several weeks ago and prices on the better grades were fractionally lower. Refiners have curtailed their purchases of natural gasoline temporarily and with less material going to the Gulf Coast there is more available. Some of the larger manufacturers continue to buy on the open market in order to build up stocks to meet contracts covering the first half of the year and some support is given the market as a result.

Despite the removal of approximately 500 cars of kerosene for export over the past week, that product has not shown more than a slight advancement in price. Most of the material was supplied from large stocks carried by refiners and while no advance in price appeared after the sale the better future of the market was guaranteed.

Fuel oils were more firm, but there were no price advances. The posting of a 10-cent cut on both grades of Smackover crude by the Louisiana Oil Refining Co. on February 6 serves as a very discouraging factor in the immediate future for higher prices in the Mid-Continent. The gas oil market showed greater stability and only a comparatively small amount of material was being offered. Refiners are holding their stocks for use as charging stock to pressure stills, anticipating a gradually stronger gasoline market.

Only the normal movement of lubricants was apparent and there is little thought of price changes either way. This applies to compounded oils and neutrals but bright stocks displayed added weakness. A small amount of material is being shipped out of the Mid-Continent for export at very low prices. Steam refined stocks, both the treated and untreated, have shown a weakness and prices were fractionally lower. The wax market is firm but considerable buying resistance is encountered whenever a price advance is announced. As refiners are more and more obligated to look to the domestic consumer for an outlet, because of the increased shipments of wax to our foreign customers from foreign refiners, a quicker reaction to price advances and declines is seen and price fluctuations occur more abruptly.

REFINED MARKET BAROMETER

Very few price changes occurred during the past week and opinions vary as to the immediate future of the market. Atlantic Coast refiners have been freely supplied with cheap crude and even lower prices on gasoline and fuel are possible. Many Mid-Continent refiners are optimistic about the future of the market and continue to store a large share of their gasoline production, refusing to meet competition at the low of the market. Natural gasolines were stronger in California but witnessed a reversal in the general trend in the Mid-Continent as fractional declines were taken. Fuel oil was weak along the seaboard. While the demand improved in the Mid-Continent the lower prices posted on Smackover crude has dampened any thought of a general advance. Lubricants remained unchanged.

Atlantic Seaboard.—Gasoline and kerosene developed added weakness and the outlook for higher prices in general is quite remote. Fuels continue weak.

Mid-Continent.—By storing a large share of their production, and refusing to meet low prices the general market is set for a general advance but material continues to be plentiful. Kerosene failed to show any material strength as a result of the large export purchases late last week. Fuels were firm but no advance is expected in face of the Smackover crude cut.

Chicago.—Practically no change was apparent in the general market.

California.—Natural gasoline was more firmly quoted but prices were unchanged. The balance of the market was heavy but showed no price changes.

Gulf Coast.—An improved demand for lubricants has made the general market outlook better but there were no price changes. Fuel oil continued very plentiful.

Pennsylvania.—Slight readjustments of a few lub prices constituted the only change.

Gasoline and Naphthas

The U. S Motor grade was generally quoted at 5⅞ cents, but there was enough of the 5¾-cent material being traded to establish the latter price as the low. Some sales were made at 5⅝ cents, but these were very few and this price is not typical. Every effort is being made by the larger units, especially those who are following out a storage program, to bring the minimum to 6 cents and already several refiners who had been quoting 5¾ cents have established 5⅞ cents as their minimum.

Natural Gasolines

The lesser demand on the part of refiners has been responsible for the slight recession of prices and while the larger manufacturers continue to store a portion of their production and are on the open market to help fill future deliveries the prices on the A and AA grades declined one-eighth to one-quarter cent and the only grade showing strength was the C grade which advanced to 4½ cents.

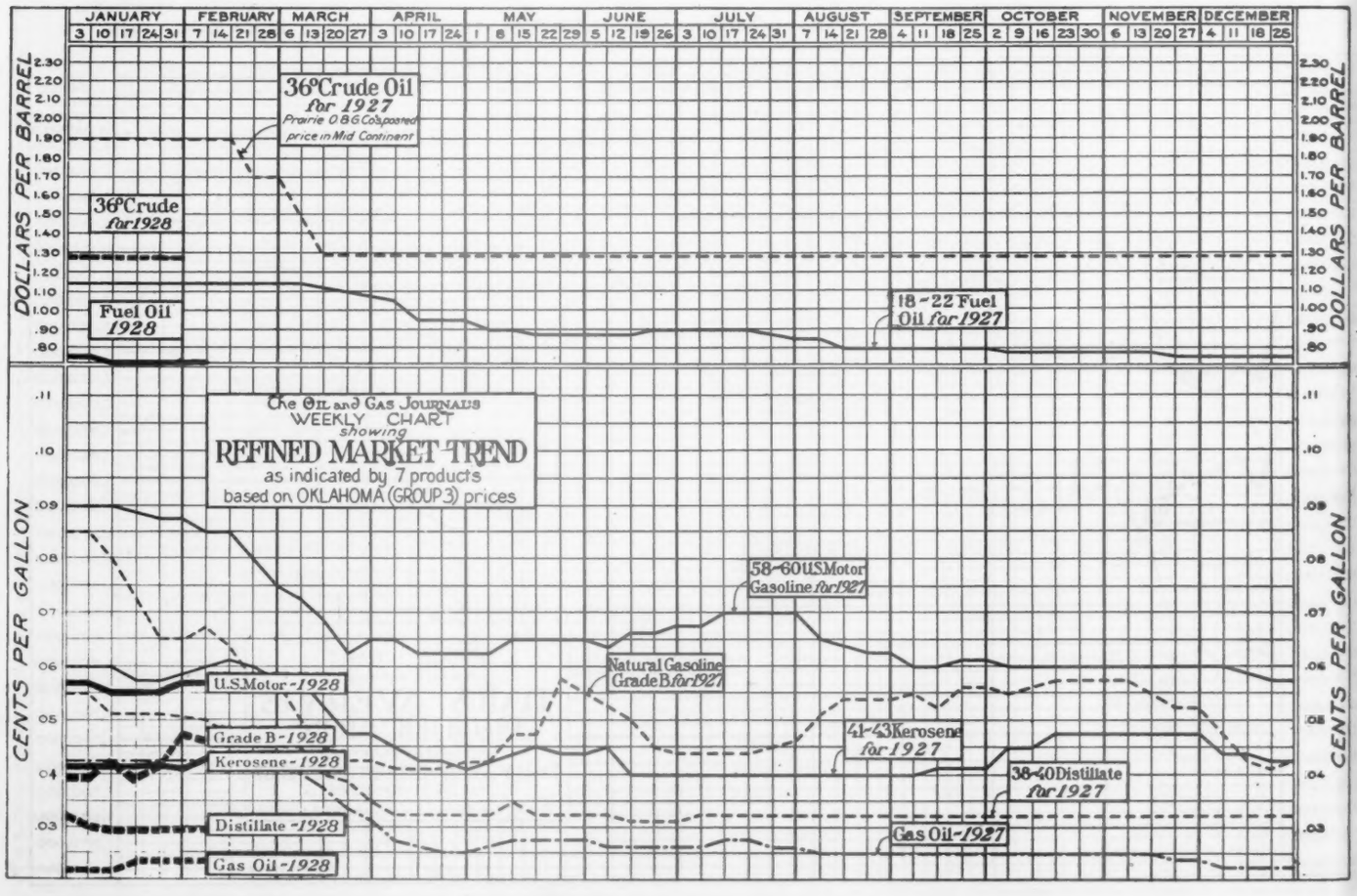
Kerosenes and Distillates

Refiners were generally quoting 4¼ cents for the 41-43 kerosene and found the movement slow. Distillate sales continue to decrease slowly as the winter season is closed and as more of this production is thrown into kerosene the latter will become even more plentiful, until the spring agricultural demands are made.

Fuel Oils and Gas Oils

The low price for any grade of com-

(Continued on Page 249)



No Indication of Decline in California

Production in 1928 May Exceed That of Last Year. Much Depends on the Amount of Deep Drilling Undertaken

By L. P. Stockman

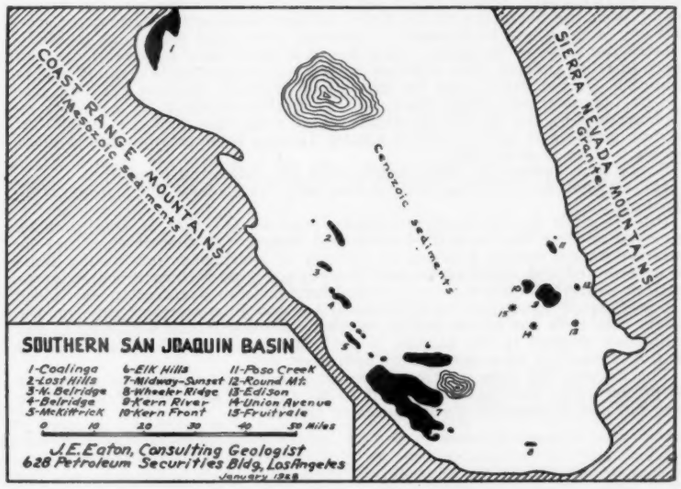
California climaxed its fifth consecutive year of excessive crude oil production with an output of 230,751,463 bbls. in 1927, and while this is not a State record it has only been exceeded on one occasion. This was in 1923 when the total State production aggregated 263,728,895 bbls., a daily average of 722,545 bbls. The current year, 1928, is starting off with a production considerably less than the daily production at the beginning of 1927, but one should not get the impression that this is indicative of further substantially improved conditions. In the 1926 review made a year ago the writer summarized conditions at that time by stating that "for the fourth consecutive year California has produced in excess of 200,000,000 bbls. of crude oil annually and it is highly probable that developments during 1927 will result in an output equally as great, if not larger than the 224,117,013 bbls. produced during the 12 months of 1926." That this prognostication was fulfilled is evidenced by the fact that California's production in 1927 was 6,634,450 bbls. in excess of 1926 and while it cannot be definitely stated that crude oil production in 1928 will be still larger than 1927 this possibility may become an eventuality due to deep sand exploitation in proven areas and the opening up and development of new fields throughout the State.

Deep sand exploitation has already got under way in the Long Beach and Seal Beach Fields and it is quite probable that a similar movement will be undertaken at Rincon where the upper or State zone has not proven as prolific as anticipated. Deep drilling at Long Beach has already begun to manifest itself in increased production and it is quite probable that at least 25,000 bbls. more will be added to the daily production of that remarkable field within the next several months. The lower zone under development in that area is of sufficient thickness to warrant the anticipation of fairly large production during the first half of the current year and the relatively large number of new wells and deepening projects headed down to the lower zone at the present time may prevent any appreciable decline for several months after the peak has been reached. The productivity of the deep horizon under exploitation at Long Beach should not be confused with similar work at Seal Beach as the sand in the former area is several hundred feet thick and should therefore show a considerably greater ultimate recovery. Deep sand completions at Long Beach have been averaging around 1,500 bbls. of oil and 1,500,000 feet of wet gas per well initially and while this will naturally get smaller as additional producers are finished it will probably be several months before the pumping stage is reached and even then gas lifts and repressuring may prevent a substantial drop. This deep sand exploitation at Long Beach is not limited to increased production of light crude oil as these flowing wells are all making at least 1,000 feet of natural gas for each barrel of crude produced. Several of these deep projects have come in making around 5,000,000 feet of gas daily and natural gas plant operators report that in some instances the casinghead content has run as high as 4 and 5 gallons per 1,000 feet of gas treated. This is no small matter and if future completions prove as productive as those finished to date the resulting casinghead production may be a very important factor in the California marketing situation later this year.

Seal Beach's Uncertain Future

The recent discovery of another deep zone in the Alamitos Heights town lot area of the Seal Beach Field may add another 20,000 bbls. to State production within the next six months but present indications tend to confirm the opinion of many well-informed operators that this will be merely a flash in the pan and of short duration, although subsequent developments may change the aspect of the situation entirely. The initial deep zone completion in this section opened up a sand 170 feet thick and while this will not sustain intensive drilling indefinitely it is capable of resulting in a fairly large flush if a sufficient number of wells are completed within a realtively short period of time.

The Richfield Oil Co. only took a penetration of 170 feet in No. 1 Bonner and while a sand of this thickness might result in a temporary flush of 20,000 bbls. per day this might not represent the maximum daily production as the 170 feet of oil sand actually opened up may not represent the entire amount of oil-bearing formation present. The Marland Oil Co. is working on two deep wells in the northern part of its Selover lease offsetting the Town Lot area, both of which have been drilled deeper into the lower zone. No. 16 Selover recently came in flowing 1,500 bbls. per day from a depth of 6,608 feet but the output was cutting approximately 50 per cent water. This well drilled through about 500 feet of sand and if the water present in the initial flow was due to mechanical trouble this new zone presents almost unlimited possibilities. No. 11 Selover, another deep well in the northern part of this lease, will be tested out some time within the next few days and the potentiality of the new Bonner sand, or McGrath zone, as it is sometimes termed, may be determined before this resume gets into print. It is my personal opinion that this deep zone at Alamitos Heights should be watched with the utmost care as I am rather inclined to believe that the 170 feet of sand actually opened up by the Richfield Oil Co. in No. 1 Bonner does not represent the total amount of oil sand present by any means.



Deep Pay in Rincon?

The existence of a deep projected horizon at Rincon has not yet been definitely established but there is ample justification to believe that such a zone exists at least on the apex of the structure. Drilling operations in this field indicate that the apex is located beneath that limited area now under intensive development. There is no town lot area present at Rincon but the irregularity of property lines will accomplish the same result and this condition has already caused intensive drilling. The potentiality of a deep zone in this area is therefore quite obvious as the completion of 15 or 20 wells in the lower zone might add 25,000 bbls. per day to State production before the present year draws to a close. No wells have yet been started down to this deep projected horizon but operators are all using large casing and it is a safe bet that deeper drilling will be undertaken in the very near future, especially if operators continue to be handicapped with water trouble in the present upper or State zone. A deep test may be undertaken in this field within the next 60 days unless an additional thickness of sand is opened up in the present zone. This anticipated deep drilling looks like almost a foregone conclusion especially in view of the fact that recent completions in this field have proven dismal failures as far as large commercial production is concerned.

Long Beach, Seal Beach and Rincon will all look good for increased production during the next several months and this trio is expected to cause a very appreciable upward swing in State production in the very near future due to deep sand exploitation.

Ventura Avenue Under Control

The Ventura Avenue Field will probably be kept well under control but the total production in 1928 may be somewhat in excess of the 17,808,704 bbls. produced during the past year, 1927. Most of the productive acreage in this field is held by the Associated and Shell companies, and while neither is expected to engage in an extensive drilling campaign during the next six months additional drilling may become necessary if other fields fail to afford sufficient crude to meet refinery requirements. Drilling operations at Ventura Avenue during the coming year, therefore, depends to some extent upon the outcome of similar work at Long Beach for if the latter fails to show a relatively large sustained production the deficit must be made up in some other area. The potential daily production of the Ventura Avenue Field has been quite stable during the past year, varying between 50,000 and 5,000 bbls. but another 100,000 bbls. could be added to the daily output by additional drilling if necessity demanded. The word potential is used advisedly in the previous sentence as the actual daily production of this field dropped below 40,000 bbls. per day in May, June and July when operators mutually shut in more than 15,000 bbls. of oil per day in order to offset the flush production coming from the Alamitos Heights town lot section of the Seal Beach Field.

Possibilities of the New Pools

The effect of wildcat acreage on production in 1928 is problematical and while none of the new fields discovered in 1927 played an important part in State production during the past year this was due partly to the fact that drilling operations were severely curtailed because of the flush conditions existing at Huntington Beach and Seal Beach due to intensive development of town lot areas in each field. Only a limited amount of work is anticipated in the Mount Poso, Round Mountain and Edison Fields this year as all three districts yield a heavy oil not particularly adapted to present refinery practice. Potrero and Rincon on the other hand yield a light refining crude and both of these districts are expected to show increased production during the current year, although drilling operations in the former area will undoubtedly be held back and production of this field will therefore be governed by the amount of development work undertaken.

There are several promising wildcat areas under development at the present time which might also register additional production during the latter part of 1928 although new fields opened up from now on will not reach their peak until 1929. The Union Avenue district located about 5 miles southeast of Bakersfield in Kern County, will bear watching during the next several weeks as the Pacific Eastern's wildcat in this area has actually made some oil, shooting an intermittent but solid 4-inch stream over the crown block on several occasions. Two separate oil zones have actually been logged in this well, the lower of which contains a relatively light refinable crude. The Pacific Eastern has just started a second test in this area and with the information gained from the first hole this new well should definitely determine the potentiality of the Union Avenue area unless, of course, mechanical trouble should prevent a satisfactory test. Fruitvale, located about 5 or 6 miles northwest of Union Avenue, is another exceptionally promising wildcat area which will bear watching during the next several weeks as the Pacific Eastern has also logged an oil sand in its initial wildcat at this point. This project is scheduled to be given a production test some time during the next several days and if the present sand is commercially productive Fruitvale may become a new field early in February.

Northern Wildcatting in 1928

Wildcatting operations in California have continued practically unabated during the past several years, notwithstanding the heavy overproduction situation which has existed during this period due to intensive town lot drilling in proven fields. The numerous prolific fields discovered in the Los Angles Basin during the past several years had a tendency to concentrate drilling activities and prospecting work within a relatively limited area in southern California and as a consequence very little wildcatting was undertaken in the northern part of the State which today has possibilities comparable to those existing in the Los Angeles Basin previous to 1920. The opening up of Long Beach, Huntington Beach, Santa Fe Springs, Torrance, Dominguez, Rosecrans, Inglewood, Seal Beach and Potrero during the past eight years has reduced the potentialities of the Los Angeles Basin and wildcatters have accordingly transferred their activities up

(Continued on Page 263)

Oil Legislation Framed by Committee

Recommends Declaration Permitting Co-operative Agreements for Development of Pools and Conservation of Production

WASHINGTON, D. C., Feb. 6.—The Secretary of the Interior, Hubert Work, as chairman of the Federal Oil Conservation Board, today made public the report recently submitted to the oil board by the Committee of Nine, dealing with the legislative needs of the petroleum industry. Accompanying the report was a copy of a tentative bill drafted by the Committee of Nine and which the committee suggested would, if enacted into law, result in practical conservation, more efficient production, and tend to modernize existing methods employed in the development of oil pools.

Secretary Work stated that this report of the Committee of Nine had not yet been considered by the oil board, or by Government technologists who for the past three years have been conducting an exhaustive survey into every phase of oil production, distribution, and consumption. The public is entitled to know, the secretary added, just what conclusions and recommendations the Committee of Nine determined upon, and in as much as the oil board can not conclude its own program of investigation immediately, the secretary felt there appeared to be no necessity for withholding the report from the public until finally acted upon.

The Committee of Nine consisted of: Thomas A. O'Donnell, California Petroleum Co.; J. Edgar Pew, Sun Oil Co.; W. S. Farish, Humble Oil & Refining Co.; Henry M. Bates, University of Michigan; James A. Veasey, Carter Oil Co.; Warren Olney, Jr., of San Francisco, Calif.; Edward C. Finney, assistant secretary of the interior; Walter F. Brown, assistant secretary of commerce, and Abram F. Myers, federal trade commissioner.

The committee's work covered a period from December 10, last, to January 27 of this year, during which hearings were held, written suggestions considered, and the final report was submitted to the oil board on January, 28, 1928.

Text of Committee's Report

We are by no means confident that we have covered the whole field of oil conservation. We are confident we have not. But we are fairly confident that we have considered the most important features of the problem. We have also considered all suggested legislative remedies that bear upon them. Our report, of necessity, does not discuss all remedies suggested, nor does it deal in detail with the underlying facts upon which our recommendations are based. It sets forth our specific recommendations and the general considerations by which we have been led to make them.

Before our committee was organized, a very large mass of evidence and information on the subject had been collected by governmental agencies, by committees representing the oil industry, and by individual investigators. That gathered by governmental agencies and by committees representing the oil industry was made available to us, as were also the results of investigations by many individuals. The evidence and information made available to the committee has been considered by it. The committee also has had public hearings, at which data and suggestions were submitted to it directly, both orally and in writing.

The subject naturally divides itself into two phases or subdivisions, that concerned with oil produced from private lands and that concerned with oil produced from public and Indian lands. As to oil from privately owned lands, concurrent and harmonious legislation should be had by Congress and the legislatures of the oil-producing states. As to oil from public and Indian lands, the matter is one solely for legislation by Congress. By far the greater bulk of our oil production comes and will continue to come from privately owned lands. The conservation of our oil resources that have so passed into private hands presents both the more important and the more difficult questions. That phase of the matter we consider first.

Privately Owned Lands

We take it that true conservation does not mean the withholding from present use of the nation's natural resources. It does mean that those resources should be drawn upon without waste and in orderly response to the economic needs of the country. We have devoted attention to ascertaining to what extent and in what manner waste occurs in the production and use of oil, and to how and why the production of oil is not in orderly response to the country's economic demand for it.

So far as concerns waste of oil, the evidence is conclusive that there is no substantial waste after the oil is once produced. When it is once out of the ground it is practically all put to beneficial use, the character of the uses and the amount consumed by each being determined by economic factors. The only exception to this is at times of overproduction, when excessive quantities of oil are carried in storage. There is an unavoidable loss of oil at such times due to the dissipation of the more volatile elements. There is also a decided economic loss incident to the storage. There exists possibly something of a public impression that there is a considerable loss of oil through the failure at times to capture and confine the oil as it comes from the well, particularly from a gusher well. This impression, if it exists, is incorrect. The amount of oil so lost is so small as to be negligible for all practical purposes.

Recoverable Oil

On the other hand, there is what for practical purposes is a distinct waste in the process of getting the oil out of the ground. It consists in the failure to recover from the sands in which the oil occurs the full proportion of the oil content that is susceptible of recovery by the most efficient and yet practical methods of production. The proportion of the oil recovered in actual competitive practice is in the judgment of competent engineers as low as 20 per cent in many cases. The balance of the oil content which still remains in the sands, is in one sense not wasted. It remains in the sands and is not lost in the sense that it is destroyed or dissipated, but so far as its recovery for economic uses is concerned, it is lost, since there is no method now known by which it can be recovered at a reasonable cost. There is a distinct difference of opinion as to the extent to which the recoverable proportion of the oil content might be increased in practical operation. In the opinion of some, it is not great, but the distinct weight of opinion is that it is, some opinions being that the increase might well be equal to the amount of the present recovery.

As to the production of oil in orderly response to the economic needs of the nation, the fact is that in a very marked degree production has had no relation to economic needs. The history of the oil industry has been one of recurring temporary periods of high or flush production, when the quantity of oil produced has been out of all proportion to the demand, followed by corresponding periods of low production when the supply has not been sufficient to meet the legitimate demands for the extended uses built up during the preceding period of oversupply. The resulting industrial disorganization and the forcing of oil into uses for which it is least valuable and to which it would not be put if the production were equalized and were responsive to the demands, means that there has been an economic waste. In the nature of things the extent of this waste can not be accurately estimated, but there is no doubt that it is very extensive.

Law the Cause

The primary and most important cause, both of the failure to recover the full recoverable proportion of the oil content and of production at recurring periods out of all proportion to the demand, is not far to seek and is the same. It consists in the law governing the right of the owner of land to recover oil from it. The law is that the owner of the land has the right to recover from his land all the oil that can be produced therefrom, regardless of whether that oil was originally in place in his ground or has been caused to flow from the ground of others by his action in opening and operating a well on his property. There is no property, in the strict sense, in the oil until it is recovered any more than there is in underground water, and the oil belongs to him who first gets it. The result is that when an oil field is once opened, it is a race between all the owners in the field to recover all each can. It is a race in which they must take part, willy-nilly, or else lose what otherwise they might obtain. It is a race which can be avoided only by the joint action of every one in the field.

Function of Gas

The intensity of the race is increased by the function which natural gas plays in the process of production. That function is the subject of a most illuminating report by the Technical Sub-Committee of the American Petroleum Institute Gas Conservation Committee, made up of leading petroleum engineers of the country. Among other things, the report says:

"The data show conclusively that the conservation and efficient utilization of gas are of paramount importance in the conservation and economical production of oil. Gas dissolved in oil makes the oil more fluid, and more capable of movement through the pore spaces of the reservoir rock to the well; the energy stored in the same gas is the chief force behind that movement. The more gas the easier the oil moves and the greater the force available to move it. To dissipate gas from an oil sand is to lessen the propulsive force and increase the need for it. The energy and solution values of oil field gas are of tremendous importance. The proper utilization of gas results in greater and more orderly oil recovery at lower cost. The data show that the way to use gas to the best advantage is to use it in its original state, and that the conditions in a sand, once destroyed, can never be completely restored."

Again the report says:

"The data show finally that many, probably most, of the best methods for gas utilization can be practiced advantageously only when they can be applied systematically to a whole field; that competitive drilling in individual fields almost inevitably leads to gas waste and lessened ultimate oil production; and that either complete co-operation or unit operation is the ideal operating condition for the conservation of both gas and oil."

Since gas is the most important factor in detaching the oil from the sands and bringing it to the well, and in case of flowing wells to the surface and since

TENTATIVE BILL SUGGESTED FOR ACTION BY CONGRESS

An act to promote conservation of petroleum and natural gas, to avoid waste thereof, and to encourage the establishment, and maintenance of underground reserves of such minerals, and for these ends to authorize certain agreements.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That the term "person" or "persons" as used in this act shall include individuals, partnerships, associations and corporations interested in oil or gas deposits, as owners, lessors, lessees, royalty owners or otherwise. The term "oil and gas pool" as used in this act shall mean that area embracing the holdings of two or more persons containing oil or gas or both that is concentrated in a single geological structure. The term "co-operative development and operation" shall mean and include any agreed plan for the development and operation of a pool, as above defined, in such manner as to avoid wasteful methods of development and production, and cause as efficient and complete a recovery as practicable.

Sec. 2. No agreement by two or more persons for the co-operative development and operation of an oil and gas pool shall be deemed in violation of any of the acts of Congress forbidding monopolies or agreements in restraint of interstate commerce.

Sec. 3. Agreements between oil producers for the curtailment of the drilling of oil wells and of the production of oil during periods of overproduction, as such periods are determined and declared as hereinafter provided, shall, when made in compliance with the conditions hereinafter provided, be deemed not in violation of any act of Congress forbidding monopolies or agreements in restraint of interstate or foreign commerce. No period of overproduction shall be deemed to exist, for the purposes of this act, unless and until the same has been publicly declared to exist by the Federal Oil Conservation Board, consisting of the Secretary of the Interior, the Secretary of War, the Secretary of the Navy, and the Secretary of Commerce, nor shall any such period be deemed to continue after said Board has publicly declared the same to be ended. Said Board is authorized to investigate and ascertain from time to time whether a state of overproduction of oil exists within the United States, and the district or districts wherein it exists, and if in its judgment such state does exist, to declare publicly, in a manner to be prescribed by the Board, the existence of such state and the district or districts wherein it exists, and in similar fashion to determine and declare that such state is at an end.

Every such agreement shall comply with the following conditions:

(a)—It shall be in writing and be filed with the Federal Oil Conservation Board.

(b)—It shall by its terms expressly provide (1) that it shall not be operative until it has been filed with said Board, (2) that it shall not be operative except during a period or periods of overproduction, as the same are determined and declared by said Board, and only within the district or districts within which a state of overproduction is so declared to exist, and

(c)—That it is subject to disapproval by said Board at any time on the ground that it is not in the public interest, and upon such disapproval and notification thereof to the parties, in such manner as may be prescribed by the Board, shall at once cease to be operative.

The Federal Oil Conservation Board is authorized to prescribe necessary and proper rules and regulations and to do any and all things necessary to carry out and accomplish the purposes of this act.

also the oil content is common to the whole field—using field in the sense of a single deposit or pool—the release of gas through one well affects all other wells in the same field.

Each operator, therefore, for his own protection, must get his wells into the oil bearing strata at the earliest possible moment, and having done so, keep on producing from them to capacity or else lose to his neighbors the advantage of the common gas content.

Common Development

The result is twofold unless all the owners in the field unite in a common plan for the development and operation of the field. The first is that the gas content is largely dissipated and lost for the benefit of the few wells which first tapped the oil bearing strata and for the field as a whole the recoverable proportion of the oil content seriously reduced. Herein lies by far the most important cause of the failure in actual practice to recover the full recoverable proportion of the oil content.

The second result is that when once a field is opened it is not possible for any owner or operator in it to do anything but drive on with all speed to secure from his land all the oil possible at the earliest possible moment. He can not wait because of market conditions or anything else. When a prolific field is discovered, and particularly when several prolific fields are discovered at about the same time, there is no way as a rule of holding back their production, and a flood of oil is produced, regardless of economic demand for it, and frequently far in excess of that demand.

Suggested Remedy Impracticable

Such being the primary and most important cause of the waste and the uneconomic production of oil, there arises the question of a remedy for it. One remedy suggested is a change in the fundamental law governing the right of recovery. It is suggested that the law be changed so that each landowner be entitled to all the oil naturally in place under his land and no more, so that he may not drain oil from under his neighbor's land, and his neighbor may not drain oil from under his. Putting aside the serious constitutional objections to any such change in a fundamental law of property which immediately suggests themselves, we regard this proposed remedy as wholly impracticable. It is not possible to determine with any reasonable certainty what oil comes from one man's land and what from his neighbor's. No one could, with any security whatever, produce oil from his property if his right were confined to the oil naturally in place under it unless his property were so large that his wells could all be placed so far from his neighbor's lines as to foreclose the possibility of drainage from beyond those lines. The proposed change in the law would, in our judgment, produce such a condition of insecurity and give rise to such extensive and interminable litigation as to prevent necessary and proper development. In our judgment, the only practical law governing the right to recover oil is that which now exists and which has been developed to meet the necessities of the case. Whatever remedy may be found must be found upon the basis of that law and adapted to meet the conditions caused by it.

Co-operative Development

Meeting these conditions, one thing which immediately suggests itself is the co-operative development of any single field by its owners and operators. By single field we mean a single pool or deposit wherein the operations of one owner affect his neighbors. By such co-operative development, the most important result can be had of conserving the gas content and utilizing it to the fullest possible extent and for the benefit of the whole field. The doing of this should increase greatly the total actual recovery from the field. So far as preventing the present waste in failing to recover the full recoverable proportion of the oil content of the oil bearing sands, we regard the method of co-operative development and production of single fields as the most effective remedy.

The difficulty lies in bringing this about. Theoretically it can be brought about either by voluntary agreement of all the owners or operators in the particular field or, disregarding possible constitutional difficulties, by the coercive power of the State. There are, however, very great practical difficulties in the way of the direct application of the State's coercive power, as for example, by the formation of State instrumentalities such as oil districts analogous to irrigation districts, on which would be conferred the power to impose a common plan of development and operation on a while field. No two fields are alike, and the plan for common development and operation, which would be best for one field and most equitable as between those interested in it might not and probably would not be applicable to another field.

No uniform plan would be possible, and it would be exceedingly difficult to provide the machinery whereby through the power of the State a plan for common development and production should be imposed upon a field without the gravest danger of the plan miscarrying in its object and doing the greatest injustice to some of those upon whom it was imposed. For the present, at any rate, we do not believe that any such drastic and difficult expedient should be attempted as that of imposing on the owners and operators of a field, or even a small minority of them, some plan to which they do not all agree. The matter is one to be brought about by voluntary agreement, if possible. In bringing it about, the State should remove any unnecessary obstacles in the way and bring to bear what pressure it reasonably can. This brings us to our first recommendation.

Voluntary Agreements

One great difficulty which has stood in the way of voluntary agreements for co-operative development and operation is the fear that such agreements may be held to be in violation of the so-called antitrust laws, both federal and state. An almost necessary feature of any co-operative plan is the control of production, and because of this feature the fear has arisen. We do not believe the fear to be well founded. It seems clear to us that any agreement for the co-operative development and operation of a single pool even though it involve the control or curtailment of production from that pool, is not a contract or agreement in violation of any antitrust law, either state or federal. Nevertheless, the fear exists and has been a serious deterrent to the making of co-operative agreements. It should be removed. We, therefore, recommend that both Congress and the legislatures of the oil-producing states be asked to pass legislation which will unequivocably remove such agreements from the purview of laws forbidding restraints on commerce. We append hereto, as Appendix "A," a form of an act by Congress, the second section of which will, we believe, do this. The legislation to be passed by the states should be in the same form, with such possible variations in exact wording as may be appropriate because of the differences in the antitrust laws of the different states.

Curtailment of Drilling

There is another particular in which we would recommend legislation affecting the antitrust laws. No measures short of drastic limitations on the production of oil, which would be distinctly against the public interest, can be relied upon to wholly prevent periods of overproduction. The occurrence of such periods is inherent in the circumstances in which the oil is found and under which it must be produced. Their injurious effect, however, can be much diminished by permitting at such times the curtailment of drilling and production of voluntary agreements between the oil producers. At the present time such agreements, no matter what the necessity for them, would be in violation of the antitrust laws of some, if not all, of the oil-producing states, and under some circumstances in violation of the laws of Congress prohibiting restraints on interstate and foreign commerce. It is distinctly in the public interest that agreements between oil producers for the curtailment of drilling and production be permitted at times when serious overproduction exists or is immediately threatened. It is a permission that should be confined to those times as an emergency expedient, so to speak, should end when the emergency ends, and should in general be carefully safeguarded.

All this, we believe, can be accomplished by legislation providing, (a) that during a period of overproduction or in immediate anticipation of one, agreements curtailing the development and production of oil shall not be in violation of the laws, state or federal, forbidding restraints on competition; (b) that a period of overproduction permitting of such agreements be deemed to exist only when so declared by suitable governmental authority, and be deemed to end when that fact is similarly declared; (c) that all such agreements be subject to supervision by suitable governmental authority, be filed with it as a condition of their legality, and do not become effective until they are so filed; and (d) that the supervising authority has the right to abrogate any agreement filed which for any reason it judges not to be in the public interest.

As the granting of permission for such agreements would be a conservation measure, and as, also, it might be a matter of distinct importance, it would seem not unfitting that the governmental authority which might declare when such agreements could be made and the period for which they should be effective and have supervision over them, should be the Federal Oil Conservation Board itself. The third section of the form of an act by Congress, appended hereto as Appendix "A," has been prepared by us for the accomplishment of this purpose. It should be followed by legislation by the oil-producing states, granting as to their laws a similar permission when such permission is given by federal law.

Conserving Gas Content

Closely connected with the matter of co-operative development and operation of oil pools is that of conserving the gas content. The waste of gas in actual practice has been great, both in the failure to maintain the gas pressure for oil-producing purposes, and in the failure to put the gas to the valuable economic uses of which it is capable. Enormous quantities of gas have been simply wasted into the open air or burned. We have given particular consideration to this phase of the conservation problem. We are agreed that in general the waste of gas should be forbidden by law. We are likewise agreed that suitable legislation to this end is the most important affirmative step to compel conservation that can be taken. Such legislation, if properly devised, will, we believe, not only prevent waste existing at the present time, but will have a decided effect in inducing agreements for the co-operative development and operation of oil fields, and such co-operative development and operation constitutes, we believe, the most important means for fully utilizing and conserving in the true sense our oil resources.

Danger of Legislation

But we are unable for the present to determine just the form that such legislation should take. Ill-advised legislation, no matter how well intended, might do great injury and great injustice; for example, we doubt exceedingly the wisdom of legislation which would simply forbid without any exception the escape of any gas not put to beneficial use after leaving the well. Conditions in the various fields differ so greatly and actual development has proceeded so far under present practices, that an inflexible rule such as that just mentioned might well mean that some fields would have to be shut down. Any measure compelling conservation will affect some interests adversely, and the mere fact that it does so is not a sufficient reason for not adopting it. But if the measure is too drastic as applied to existing conditions and is so harsh as to work grave injustice, it defeats itself in actual operation and runs the danger at least of being held to be unconstitutional.

The legislation furthermore is legislation which must be adopted by the states. In our judgment, legislation regulating or forbidding the waste of natural gas is primarily within the police powers of the individual states and at least under pres-

(Continued on Page 249)

COMMITTEE NAMED TO CONSIDER HENDRICKS POOL WATER PROBLEM

By James H. Dameron

FORT WORTH, Tex., Feb. 4.—A staff of field men was appointed today by Hendricks Field operators in a meeting here which was called by R. D. Parker, chief of oil and gas division, Texas Railroad Commission, to consider the seriousness of the water problem in the big Winkler County Pool.

The committee is comprised of men in intimate touch with problems of the field as they develop. Their authority is limited to suggesting remedies to individual well prob'ems. If their suggestion is not carried out then the matter is one to be settled by the railroad commission and the operator.

Meetings of the committee will be held in the field and as frequently as necessary. J. A. Morehouse, deputy supervisor of the oil and gas division of the commission and stationed at Fort Stockton, was appointed chairman of the committee. Each operating company in the field designated one of its field men as a committee member.

A committee of men in the field to handle a serious problem is believed to be an innovation and the resu'ts are being watched closely. All of the operators at the meeting were of the opinion the water situation in Hendricks is serious and those operators evinced a spirit of co-operation that brought about the appointing of a committee in short order.

The meeting was called by Mr. Parker following receipt of complaints of ill-advised operating practices resulting in the encroachment of bottom hole water. Mr. Parker presided and he suggested that a casing regulation for the field would probably offer a solution of the problem.

Cementing Upper Gas

Operators, however, were indisposed to make a casing regulation at this time pointing out that developments so far indicated a casing regulation would not be applicable to all parts of the field. Each operator addressing the meeting was of the opinion the water situation in the pool was serious.

Alex Fields, superintendent for the Roxana corporation in the Hendricks Pool, voiced objection to cementing off the upper gas in the pool and his objection was held by those entering the discussion. He is of the opinion the Hendricks Field is a water drive area and pointed out that the porous lime where the upper gas is encountered carries oil, gas and water.

In urging that no regulation be made forcing operators to cement off the upper gas he reviewed the developments of Roxana corporation's No. 1-A Hendricks. It encountered 50,000,000 feet of gas in the same pay the Landreth-Roxana's No. 2 Grisham-Hunter produced oil. When the well blew in a fishing job resulted. While fishing the well started making oil and the oil continued to increase. Today the well is good for 15,000 bbls. daily with 500 pounds back pressure on it. It is estimated that the well would make 20,000 bbls. daily wide open.

In discussing the pay zones of the field he related that one well was cored every foot of the way through the pay. The cores revealed five separate pays separated by impervious streaks of lime and shale.

Operators were of the opinion that the ultimate recovery of the field would be less if the gas were cemented off. To do so, it was brought out, wou'd result in a good volume of oil being trapped in the porous lime on the high part of the structure. The ideal method of produc-

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Engineers to Discuss Many Problems

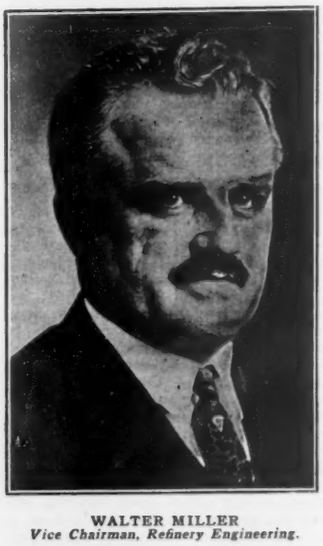
Matters Affecting Production, Refining, Economics Will Be Considered at A. I. M. & M. E. Meeting in New York

The petroleum division of the American Institute of Mining and Metallurgical Engineers will hold its annual meeting as a part of the one hundred and thirty-sixth meeting of the institute. The institute meeting is scheduled for February 21 to 24 at the Engineering Societies Building, 29 West Thirty-ninth Street, New York City. The petroleum

JOHN M. LOVEJOY
Chairman, Petroleum Division.

division programs will be presented on February 22 and 23.

A broad and comprehensive program has been arranged. The papers to be presented have been prepared by authors who are considered to be the best informed on their respective subjects.



WALTER MILLER
Vice Chairman, Refinery Engineering.

Production engineering, refinery engineering, production, economics, and round table discussions on engineering research and engineering education are given as a part of this program.

For many years the petroleum division has presented to the industry a symposium on the production of the world. Reviews are given of the production from each important area in the United States and from each important foreign country. W. E. Wrather is vice chairman in charge of this program, assisted by Joseph Jensen of California.

The program arranged for production engineering will present a summation of existing knowledge on air-gas lift and gas-oil ratios. The second session on production engineering will present papers on deep-well drilling technique, mechanical conditions of holes and their effect on production, and other engineering subjects which are now pressing for

R. S. McFARLAND
Secretary, Petroleum Division.

solution. Dr. J. B. Umpleby, vice chairman for production engineering, is in charge of this program, assisted by E. O. Bennett of Oklahoma and A. C. Rubel of California.

Refining Program

The refinery engineers, headed by Walter Miller of the Marland Refining

J. B. UMPLEBY
Vice Chairman, Production Engineering.

Co. of Oklahoma, will present a very complete program covering new developments in modern refining technique. Of particular interest will be the papers presented under the general topic of economical application of heat. These papers take up the various types of modern stills, and considerable discussion on this subject is expected.

The list of contributors of primary

A. I. M. & M. E. PROGRAM

Petroleum division program annual meeting, American Institute of Mining and Metallurgical Engineers, February 22 and 23 at New York.

John M. Lovejoy, chairman; R. S. McFarland, secretary.

The petroleum division will hold 10 technical sessions, 2 round tables, a dinner and a final general review session. The meetings have been concentrated in the two days following the general sessions of the institute. Additional sessions for continuation of the discussions may later be announced.

Wednesday, February 22, 9:30 A. M.

Refinery Engineering Symposium; T. G. Delbridge presiding.

General Topic—The Economical Application of Heat.

The Modern Pipe Still—Harold S. Bell, petroleum engineer. Discussion: H. R. Swanson, P. C. Keith, E. P. Kiehl.

The Modernization of the Cylindrical Still—C. W. Stratford, Tide Water Associated Oil Co. Discussion: W. E. Perdew, E. H. Dillon.

Production Engineering Symposium; J. B. Umpleby presiding.

General Topic—Additional Data on Gas Lift and Gas-Oil Ratios.

(a) Review of Mid-Continent Field, Including the Gulf Coast—C. V. Millikan, Amerada Petroleum Corp. Discussion: E. V. Foran, C. D. Watson, H. P. Porter, W. S. Morris.

(b) Review of California—A. H. Bell, Marland Oil Co. of California. Discussion: T. E. Swigart, E. G. Gaylord, A. C. Rubel.

(c) Report of Committee on Definition of Technical Terms.

Maintenance of Initial Sand Pressures—E. V. Foran, Marland Oil Co. of Texas. Discussion: E. O. Bennett, J. O. Lewis, W. P. Haseman.

Round Table Discussion on Petroleum Engineering Educational Problems; H. C. George presiding. Discussion: F. W. L. Tydeman, Roxana Petroleum Corp.; E. W. Wagy, Standard Oil Co. of California; J. M. Wadsworth, Independent Oil & Gas Co.; A. C. Rubel, Union Oil Co. of California; L. B. Holland, Phillips Petroleum Co.; A. M. Hepler, Humble Oil & Refining Co.; E. L. Estabrook, Pan American Petroleum Co.; H. B. Fell, Simpson-Fell Oil Co.; Clay Briggs, Empire Companies; P. M. Miskell, Empire Companies; J. J. Allison, Marland Refining Co.; R. E. Pew, Jr., Sun Oil Co.; F. W. Padgett, University of Oklahoma; C. V. Millikan, Amerada Petroleum Corp.; F. Julius Fohs, Consulting Geologist; L. C. Uren, University of California; Roswell H. Johnson, University of Pittsburgh.

2:00 P. M.

Petroleum Economics Symposium; Joseph E. Pogue presiding.

The Economic Significance of the Oil Developments of West Texas—C. P. Watson, Federal Royalties Co.

An Economic Analysis of the Fuel Oil Situation—Arthur Knapp, United Gas Imp. Co.

Economic Aspects of the Gasoline Situation—Barnabas Bryan, consulting statistician.

The Economics of Natural Gasoline—D. E. Buchanan, Chestnut & Smith Corp.

Economic Trends in the Lubricating Oil Situation—C. W. Stratford, Associated Oil Co. of California.

The Rationalization of Production: A Study of a New Economic Technique Applicable to the Petroleum Industry—Alexander Sachs, economist.

The Economic Outlook for Exports of Petroleum Products—John H. Nelson, Bureau of Foreign and Domestic Commerce.

The Loss-Ratio Method of Extrapolating Oil and Gas Decline Curves—Roswell H. Johnson and A. L. Bollens, University of Pittsburgh.

Refinery Engineering Symposium (continued); H. W. Camp presiding.

General Topic—Refinery Problems.

Sources of Automotive Fuels—F. A. Howard and R. T. Haslam, Standard Oil Development Co.

The Physical Control of Refining Processes—Luis de Florez, consulting engineer. Discussion: W. K. Holmes.

The Technological Control of Refining Processes—A. E. Miller and E. B. Phillips, Sinclair Refining Co. Discussion: H. G. Smith.

The Refinery Acid Sludge Problem—J. B. Rather, Standard Oil Co. of New York. Discussion: L. L. Davis.

Thursday, February 23, 9:30 A. M.

Production Symposium; W. E. Rather presiding.

Kansas, L. W. Kesler, Wichita, Kans.; Oklahoma, J. M. Sands, Phillips Petroleum Co.; Gulf Coast, C. L. Baker, Rio Bravo Oil Co.; West Texas, A. R. Denison, Amerada Petroleum Corp.; East Texas, D. M. Liddell, Pure Oil Co.; Central Texas, W. G. Wender, Amerada Petroleum Corp.; California, E. W. Wagy, Standard Oil Co. of California.

Production Engineering Symposium (continued); A. W. Ambrose presiding.

General Topic—Engineering Problems.

Sucker Rod Strains and Stresses—F. W. Lake, Union Oil Co. of California. Discussion: F. M. Brewster, E. O. Bennett, F. W. Hertell.

Bottom Hole Data with Particular Reference to Pressure, Temperature and Gravity of Oil—K. C. Schlater, Marland Oil Co. Discussion: R. R. Brandenthaler, J. M. Lovejoy, R. S. Knappen, C. V. Millikan.

Deep Well Drilling Technique, Including the Handling of Long Strings of Casing—F. W. Hertell, Associated Oil Co., and H. H. Dievendorf, Petroleum Securities Co. Discussion: J. R. Suman, T. E. Swigart, L. L. Brundred.

Mechanical Conditions of Holes and Their Effect on Production—John R. Suman, Humble Oil & Refining Co. Discussion: K. C. Schlater, J. B. Umpleby, E. L. Estabrook, H. P. Porter.

Laboratory Experiments on Water Flooding—L. C. Uren, University of California. Discussion: J. B. Newby, Forest Dorn, J. B. Umpleby.

Refinery Engineering Symposium (continued); H. G. Smith presiding.

General Topic—The Economical Application of Heat.

The Role of the Combustion Engineer in Refining—Joseph W. Hays, Mid-Continent Petroleum Corp.

The Use of Screened Radiant Heat and Its Application to the Petroleum Refining Industry—A. E. Nash, Alcorn Combustion Co.

The Use of Open Radiant Heat in Tube Stills—John Primrose, Foster-Wheeler

papers and formal discussions is ample evidence of the full co-operation of refining companies generally in this meeting, including as it does papers and prepared discussions from members of the organizations of the Standard Oil Co. of New Jersey, Sinclair Refining Co., Gulf Refining Co., Tide Water-Associated Oil Co., Standard Oil Co. of New York, Atlantic Refining Co., The Texas Company, Mid-Continent Petroleum Corp., Cities Service Co., and others. In the planning of the program particular attention was paid to selecting those engineering topics which were of immediate and lively interest today. The first session, for illustration, provides a forum for the discussion of the pipe still versus the most efficient conception of the cylindrical type of distilling unit. Both the papers and discussions should bring out into the open many questions which have not been discussed pro and con heretofore in a meeting of this character, and should be very valuable in helping to clear up moot questions which are troubling many engineers in the industry today.

—Underwood & Underwood
DR. JOSEPH E. POGUE
Vice Chairman, Economics.

—Griggs Studio.
FRED K. HASKELL
Vice Chairman, Transportation Engineering.

The third session follows the general thought of the first session in that all the papers are tied into the major subject of the economical application of heat. This provides a vehicle for an open discussion regarding the two principle methods of utilizing the radiant heat principle in refinery combustion, followed by what is believed to be a very complete and scientific exposition of "The Recirculation Furnace in Theory and Practice." Incidentally, the opening paper in this session on "The Role of the Combustion Engineer in Refining," by Joseph W. Hays will bring out the viewpoint of a man for many years nationally known as a consulting combustion engineer, who has for the past two or three years devoted all his time exclusively to the refining industry.

The second session, while more general in character, will bring out papers and discussions on four different subjects, which are always of direct interest to the refinery engineer and which constitute a continual problem for him.

Petroleum Economics

Joseph E. Pogue, petroleum economist of New York City, has arranged the program on economics. In this program the theories of economics are so tied into practical economics that a simple and clear picture of the petroleum situation from a statistical and economical viewpoint can be obtained. One of the important subjects to be covered is a review of West Texas and its economic significance to the industry. This problem seems to be more perplexing to oil men than any other at the present time. How the huge flood of sulphur oil from West Texas will affect the crude and refining markets of this country and what price differential will be maintained between this crude and the high gravity crude of Oklahoma are problems which will be discussed at this meeting.

Professor H. C. George, director of the School of Petroleum Engineers of the University of Oklahoma, will lead a round-table discussion on petroleum engineering education. This round table presents an opportunity for the educator to obtain the views of the practical engineer who has long since left the halls of learning and is now employing the younger graduates and attempting to make them petroleum engineers. Curricula for undergraduate and graduate courses will be discussed, together with the practical training which should be given to students in addition to their academic work.

H. H. Hill, chief petroleum engineer of the Bureau of Mines, will lead a round table discussion on petroleum engineering research problems. It is becoming more generally recognized that much experimental and research work must be done in connection with the problems of producing oil. The petroleum engineer is particularly handicapped by a lack of facts and is limited to cut-and-dry methods. Little or nothing is known of the actual movement of oil in its original state or of the changing conditions as the oil flows from its reservoir into the hole which is draining it. Experimental and research work must be undertaken by the industry on a large scale so that facts can be obtained.

E. O. BENNETT
Associate Vice Chairman, Production Engineering.

HERSCHEL G. SMITH
Associate Vice Chairman, Refinery Engineering.

A. I. M. & M. E. PROGRAM (Continued)

Corp. Discussion: E. P. Kiehl, J. S. Alcorn, W. B. Badger, W. Trinks, John Primrose.

The Recirculating Furnace—L. A. Mekler, Universal Oil Products Co. Discussion: C. B. Buerger, D. G. Brandt, E. P. Kiehl.

2:00 P. M.

Production Symposium (continued) Joseph Jensen presiding.

Appalachian States, R. S. Knappen, Gulf Production Co.; Rocky Mountain States, S. Grimsfelder, Union Oil Co.; Louisiana-Arkansas, L. P. Teas, Humble Oil & Refining Co.; Venezuela, E. B. Hopkins, consulting geologist, and H. J. Wasson, consulting geologist; Russia, B. B. Zavoico, Sinclair Oil & Gas Co.; Colombia, L. G. Huntley, consulting engineer; General Foreign (countries other than those specifically covered), J. Terry Duce, The Texas Company.

Refinery Engineering Symposium (continued), Walter Miller presiding.

General Topic—Petroleum Technology.

Modern Technique in Petroleum Production—J. M. Lovejoy, Amerada Petroleum Corp.

Round Table on Problems in Refinery Engineering: (a) Handling Refinery Gases—G. M. Burrell, consulting chemical engineer. (b) The Synthesis of Organic Chemicals by the Refiner—H. W. Camp, Cities Service Co. (c) Basic Principles of Contact Filtration—L. L. Davis, Marland Refining Co.

Round Table Discussion on Petroleum Engineering Research Problems—H. H. Hill, chief petroleum engineer, Bureau of Mines, presiding. Discussion: F. E. Wood, Midwest Refining Co.; E. O. Bennett, Marland Oil Co.; C. V. Millikan, Amerada Petroleum Corp.; J. M. Lovejoy, Amerada Petroleum Corp.; C. E. Beecher, Empire Companies; A. W. Ambrose, Empire Companies; L. C. Uren, University of California; R. R. Brandenthaler, Bureau of Mines; R. S. Knappen, Gulf Production Co.; R. Van A. Mills, Bureau of Mines; F. M. Brewster, Petroleum Reclamation Co.; J. B. Umpleby, Goldelline Oil Corp.; F. Julius Fohs, consulting geologist.

Petroleum Division Dinner 6:15 P. M.

The Petroleum Division of the American Institute of Mining Engineers will hold a subscription dinner at the Engineers' Club, 32 West Fortieth Street. The dinner immediately precedes the general session which will be held in the Engineering Societies Building adjoining the Engineers' Club.

8:00 P. M.

Petroleum Division General Session; John M. Lovejoy presiding.

General Topic—Reviews for 1927.

Refinery Engineering Developments in 1927—Walter Miller, Marland Refining Co.

Production Engineering Developments in 1927—J. B. Umpleby, Goldelline Oil Co.

Production Development in 1927—W. E. Wrather, consulting engineer.

The Trend of the Petroleum Situation—Joseph E. Pogue, consulting economist.

JOSEPH JENSEN
Associate Vice Chairman, Production.

The final session of the petroleum division will be on the evening of February 23 following the petroleum division dinner, at which time will be presented the reviews on production engineering, refinery engineering, production, and economics for the year. At this time particular forecasts of developments of the industry for 1926 will be presented.

C. W. STRATFORD
Associate Vice Chairman, Refinery Engineering.

Attendance at any or all of these meetings is not limited to members. Anyone interested in the subjects and the discussions is cordially invited to attend.

INSPECTING MID-CONTINENT

Walter C. Carroll, president of the Oil Well Supply Co.; D. J. Brown, vice-president and general manager; S. Clark Reed, vice-president in charge of stores; H. H. James, vice president and treasurer; A. H. Beale, president of the A. M. Byers Co., and T. L. Lewis, sales manager, all of Pittsburgh, Pa., have been in Tulsa during the week, inspecting conditions in the Mid-Continent area and will later visit the Texas fields and California.

Mid-Continent Refinery Runs Greater

Slight Increase in February Over January. Fires at Several Plants During Month Reflected in Operations

W. T. Ziegenhain

Mid-Continent refinery runs for February show an increase of 5,150 bbls., compared to last month and are slightly higher than a year ago. The starting up of the Humble Oil & Refining Co.'s plant at McCamey, Tex., on February 4 after being down for several days as a result of fire added 12,000 bbls. daily to estimated runs on February 1.

The daily average runs in the Mid-Continent for February will be 420,275 bbls. This increase is due to increased runs in every state in the Mid-Continent with the exception of Oklahoma which shows a reduction amounting to 3,650 bbls. Compared to a year ago, all states show lesser runs this February except north-central Texas and the increase there is largely due to the addition of the Humble Oil & Refining Co.'s new plant at McCamey in the meantime.

Oklahoma

In addition to the shutting down of the Continental's Sapulpa plant as a result of fire, the Pure Oil Co. shut down their refinery at Ardmore. This is a 5,000 bbl. plant and had been running about 2,000 bbls. daily, up to January 10 when operations were discontinued. A fire at the Anderson-Prichard plant at Cyril January 1 damaged it slightly and operations were curtailed until January 20 to facilitate the repairing of the stills and towers.

With Oklahoma refiners showing the only decrease in runs compared to last month they also show a decrease of 2,795 bbls. in their February runs when compared with those of a year ago.

North-Central Texas

Fire also left its effect on the Texas refinery operations for several plants will be forced to curtail operations at least for a short time over February. A small fire at the Amarillo Producers & Refiners Corp. at Isom on January 26 destroyed a part of the fractionating and condenser equipment but an order for replacements was immediately made and the plant will be ready to operate at capacity before the middle of the month. New bubble-cap tower sections have been installed along with exchanger type condensing equipment. A new refinery has been added to the North Texas list, that of the Bluebonnet Oil Refining Co., which has a plant at Wickett. This is a 3,500 bbl. skimming plan and its crude runs for February have been set at 3,100 as a daily average.

Arkansas

Crude runs were increased 3,000 bbls. in Arkansas, the added runs being the result of small changes made by several plants rather than the effect of increased runs in any one. Except for this general change in the runs there was no other material change in their operations.

Kansas

Kansas refinery operations showed very little change. Crude runs showed an increase of less than 1,000 bbls. compared to a month ago and what small increases certain refiners made in their runs others decreased theirs to balance.

North Louisiana

Slightly increased crude runs in practically all of the North Louisiana refiners are shown for February and reflects the improved market conditions on export material. Runs were increased 2,050 bbls. for the month but were still 3,250 bbls. less than for the same month a year ago.

RUNS TO STILLS IN MID-CONTINENT REFINERIES

1926	
February 1	385,845
March 1	365,990
April 1	368,210
May 1	391,355
June 1	415,450
July 1	410,070
August 1	407,475
September 1	419,995
October 1	408,975
November 1	417,575
December 1	403,450
1927	
January 1	403,625
February 1	418,595
March 1	418,920
April 1	401,860
May 1	407,355
June 1	426,170
July 1	428,075
August 1	457,800
September 1	422,150
October 1	420,955
November 1	426,645
December 1	417,455
1928	
January 1	415,125
February 1	420,275

MID-CONTINENT REFINERY OPERATIONS
TABLE 1

(Based on operations February 1, 1928, and January 1, 1928)

	No. of plants Feb. 1*	Crude cap'y bbls.	Crack. cap'y bbls.	Plants oper'g Feb. 1	Runs to stills Feb. 1	Plants oper'g Jan. 1	Runs to stills Jan. 1	Daily decr.
Oklahoma	47	276,200	80,100	39	174,075	41	177,725	3,650
North Central Texas	40	179,200	43,800	32	101,900	31	101,100	‡800
Kansas†	20	133,500	61,600	16	85,750	16	84,800	‡950
North Louisiana	4	44,800	19,300	4	38,150	4	36,100	‡2,050
Arkansas	9	35,300	30,300	7	18,400	7	15,400	‡3,000
Total	120	665,500	235,100	98	420,275	99	415,125	‡5,150

*Does not include plants shut down one year or more. †Includes two Missouri plants. ‡Increase.

TABLE 2

(Based on operations February 1, 1928, and February 1, 1927)

	No. of plants Feb.1,'27*	Crude cap'y Feb.1,'27	Plants oper'g Feb.1,'27	Runs to stills Fe .1,'27	Daily decr.
Oklahoma	51	263,300	46	176,870	2,795
North Central Texas	41	178,900	35	92,075	‡9,825
Kansas†	20	123,000	18	88,200	2,450
North Louisiana	5	56,000	4	41,400	3,250
Arkansas	10	32,000	7	20,050	1,350
Total	127	647,200	110	418,595	‡1,680

*Does not include plants shut down one year or more. †Includes two Missouri plants. ‡Increase.

REFINERY OPERATIONS IN NORTH LOUISIANA

(Plants which have been in operation during the past year)

Name and location—	Daily Capacity	Runs Feb. 1	Runs Jan. 1
Crystal Oil Refining Corp., Shreveport	13,000	9,000	9,500
Louisiana Oil Refining Corp., Shreveport, Bossier	20,000	17,200	16,000
Shreveport Producing & Refining Co., Shreveport	6,000	5,700	5,000
The Texas Company, Shreveport†	5,800	6,250	5,600
Total	44,800	38,150	36,000

†Topping.

REFINERY OPERATIONS IN ARKANSAS

(Plants which have been in operation during the past year)

Name and location—	Daily Capacity	Runs Feb. 1	Runs Jan. 1
Henry H. Cross Co., Smackover	4,000	3,800	3,400
Houston Oil Co., Camden	3,000	(*)	(*)
Kettle Creek Refining Co., Pearson	6,000	2,000	2,000
Lion Oil & Refining Co., El Dorado	12,000	5,500	4,000
Macmillan Petroleum Products Co., El Dorado	1,800	1,500	1,500
Ouachita Valley Refining Co., El Dorado	1,000	500	1,000
Root Refineries, El Dorado	3,500	2,500	1,000
Simms Oil Co., Smackover	3,000	2,600	2,500
E. M. Tulle, El Dorado	1,000	(*)	(*)
Total	35,300	18,400	15,400

*Shut down.

REFINERY OPERATIONS IN OKLAHOMA

(Plants which have been in operation during the past year)

Name and location—	Daily Capacity	Runs Feb. 1	Runs Jan. 1
Anderson-Prichard Oil Corp., Cyril	2,500	2,000	1,900
Barnsdall Refineries, Inc., Barnsdall	6,000	3,000	2,500
Barnsdall Refineries, Inc., Okmulgee	10,000	7,000	6,500
Bell Oil & Gas Co., Grandfield	4,500	2,100	2,100
Bolene Refining Co., Enid	5,000	2,000	3,000
Canfield Refining Co., Yale	400	75	75
Champlin Refining Co., Enid	16,000	7,500	12,000
Continental Oil Co., Sapulpa	10,000	(*)	2,500
Cushing Refining & Gasoline Co., Blackwell	1,500	1,200	1,500
Cushing Refining & Gasoline Co., Cushing	3,500	1,700	1,500
Empire Oil & Refining Co., Cushing	5,000	4,700	4,700
Empire Oil & Refining Co., Okmulgee	3,000	3,000	3,000
Empire Oil & Refining Co., Ponca City	7,500	7,500	7,500
Garber Refineries, Inc., Garber	3,500	3,200	3,000
Gilmer Oil Co., Ringling	1,500	(*)	(*)
Globe Oil & Refining Co., Blackwell	5,000	4,800	5,000
Illinois Oil Co., Cushing	3,000	1,800	1,800
Imperial Refining Co., Ardmore	5,000	(*)	(*)
Independent Oil & Gas Co., Okmulgee	4,000	3,000	2,700
Interocean Refining Co., Bristow	4,000	(*)	(*)
Johnson Oil Refining Co., Cleveland	6,000	5,000	5,000
Marland Refining Co., Ponca City	28,000	18,000	18,000
Mid-Continent Petroleum Corp., West Tulsa	40,000	24,000	24,000
Oil State Refining Co., Enid	2,000	(*)	(*)
O-I State Refining Co., Allen	800	800	500
Peppers Gasoline Co., Covington	1,000	800	800
Pierce Oil Corp., Sand Springs	12,000	6,500	6,000
Producers Oil Co., Bristow	2,500	800	800
Producers & Refiners Corp., West Tulsa	6,000	3,600	3,600
Pure Oil Co., Ardmore	5,000	(*)	2,000
Pure Oil Co., Muskogee	8,000	7,000	7,000
Riley Petroleum Co., Bristow	1,000	300	250
Rock Island Refining Co., Beckett	2,500	1,500	1,400
Sayre Oil & Refining Co., Sayre	500	(*)	(*)
Shaffer Oil & Refining Co., Cushing	10,000	10,000	10,000
Sun Oil Co., Yale	5,000	4,800	4,800
Sinclair Refining Co., Muskogee	1,000	600	800
The Texas Company, West Tulsa	12,000	12,000	12,000
Texas Pacific Coal & Oil Co., Wynnewood	2,500	(*)	(*)
Tidal Refining Co., Drumright	10,000	9,000	8,000
Transcontinental Oil Co., Boynton	2,500	2,000	1,800
Transcontinental Oil Co., Bristow	5,000	3,700	3,000
Tonkawa Refining Co., Tonkawa	2,500	700	700
Western Oil Corp., Beckett	2,000	1,000	1,000
White Oak Refining Co., Allen	2,000	1,800	2,000
Wirt Franklin Petroleum Corp., Ardmore	4,000	2,200	2,300
Yale Oil Corp., Yale	1,500	900	1,000
Total	276,200	174,075	177,725

*Shut down.

REFINERY OPERATIONS IN KANSAS

(Plants which have been in operation during the past year)

Name and location—	Daily Capacity	Runs Feb. 1	Runs Jan. 1
Arkansas City Refining Co., Arkansas City	8,000	(*)	(*)
Barnsdall Refineries, Inc., Wichita	5,000	2,400	1,200
Derby Oil Co., Wichita	5,000	2,500	3,500
Derby Oil Co., Russell	2,500	(*)	(*)
Eldorado Refining Co., Eldorado	3,500	2,000	2,200
Golden Rule Refining Co., Wichita	1,000	750	700
Kanotex Refining Co., Arkansas City	10,000	4,000	4,200
Manhattan Oil Co., Kansas City	7,000	4,000	4,000
Miller Petroleum Co., Humboldt	2,000	(*)	(*)
National Refining Co., Coffeyville	6,500	6,000	6,000
Peerless Oil Refining Co., Chanute	3,000	2,500	2,000
Roxana Petroleum Corp., Arkansas City	20,000	16,000	16,000
Sinclair Refining Co., Coffeyville	10,000	9,500	9,500
Sinclair Refining Co., Argentine	8,000	8,000	8,000
Skelly Oil Co., Eldorado	15,000	11,000	10,000
Standard Oil Co. of Kansas, Neodesha	12,000	8,000	8,000
Vickers Petroleum Co., Potwin	3,500	1,900	2,000
White Eagle Oil & Refining Co., Augusta	8,000	6,700	6,500
West Missouri Group—			
Alliance Rubber Producing Co., Centropolis	2,000	(*)	(*)
Wilhoit Refining Co., Joplin	1,500	500	1,000
Total	133,500	85,750	84,800

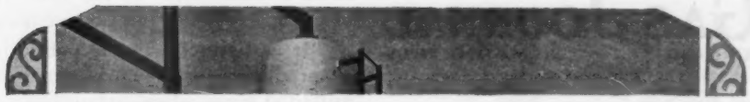
*Shut down.

REFINERY OPERATIONS IN NORTH CENTRAL TEXAS

(Plants which have been in operation during the past year)

Name and location—	Daily Capacity	Runs Feb. 1	Runs Jan. 1
Amarillo Producers & Refiners Corp., Isom	2,000	800	1,000
Amarillo Refining Co., Amarillo	5,000	3,000	3,000
American Refining Co., Wichita Falls	7,000	2,100	2,600
Anderson & Prichard Oil Corp. (Western), Wichita Falls.	1,500	(*)	(*)
Bluebonnet Refining Co., Wickett	3,500	3,100	.....
Col-Tex Refining Co., Colorado	10,000	6,000	7,750
Continental Oil Co., Wichita Falls	6,000	3,200	3,600
Dale Oil & Refining Co., Electra	2,500	1,200	1,800
Empire Oil & Refining Co., Gainesville	5,000	4,000	4,000
Falls Refining Co., Wichita Falls	1,500	800	1,000
Gulf Refining Co., Fort Worth	10,000	8,000	8,000
Hagaman Refining Co., Tiffin	2,000	200	200
Humble Oil & Refining Co., Burkburnett	4,000	(*)	(*)
Humble Oil & Refining Co., McCamey	12,000	12,000	11,000
Iowa Park Producing & Refining Co., Iowa Park	2,500	1,200	1,200
Kent-Middleton Refining Co., Angus	4,000	1,700	1,700
Kent-Middleton Refining Co., Minerva	2,500	1,000	1,000
Macmillan Petroleum Co., Isom	4,500	4,000	4,000
Magnolia Petroleum Co., Fort Worth	12,000	5,500	5,500
Magnolia Petroleum Co., Corsicana	4,000	3,200	3,200
Noble Oil & Gas Co., Burkburnett	4,500	2,800	3,200
Olney Oil & Refining Co., Olney	1,500	1,200	1,400
Oriental Refining Co., Dallas	5,000	(*)	(*)
Oriental Refining Co., (Trinity), Dallas†	5,000	3,000	3,500
Orient Petroleum Co., Wichita Falls	4,000	1,000	800

(Continued on Page 249)



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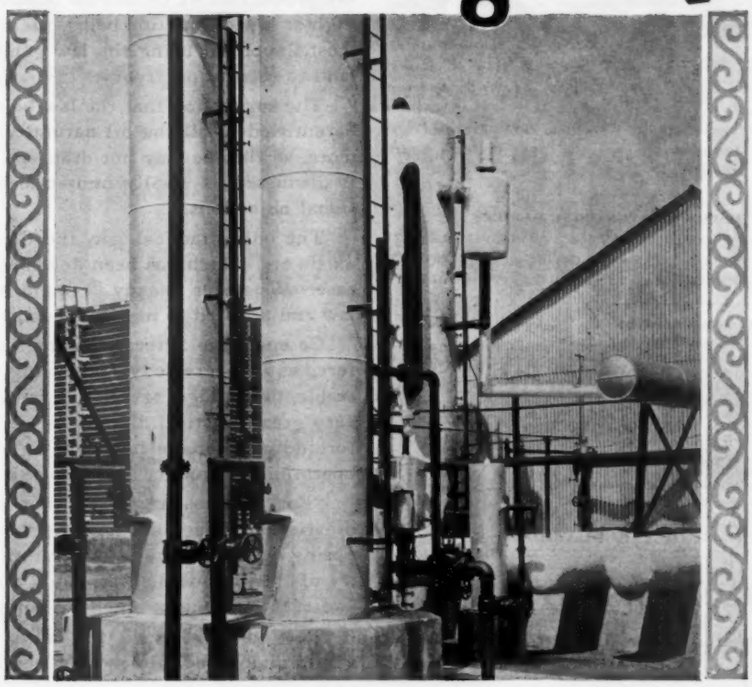

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PROPOSED OIL LEGISLATION

The Committee of Nine appointed at the suggestion of Chairman Work of the Federal Oil Board to consider a legislative program for the conservation of oil has been remarkably prompt in framing its recommendations. Its speed was no doubt due to the thoroughness with which the subject has been discussed during the past year both before the Federal Oil Board and the American Petroleum Institute, and the comprehensive summary presented in "The Oil Industry's Answer Today."

In the October 13 issue of The Oil and Gas Journal it was argued that the industry should not wait for the congressional critics of the oil business to introduce restrictive legislation but that the industry itself should draft a measure, if any legislation was required, which should serve as a model for Congress of what the Government might do to aid in the conservation of our petroleum resources.

A sample amendment was suggested with the remark that the phraseology could be modeled by the law advisers of the industry and it is interesting to observe that the tentative bill recommended by the Committee of Nine is along the line then indicated.

The thought was to clarify the situation regarding the permissibility of co-operative agreements among oil producers. Secretary Hoover, it will be recalled, suggested that if it were considered necessary to amend the antitrust laws the industry should act.

Two forms of co-operative agreement are discussed in the report of the Committee of Nine.

First, there is co-operative development and operation of an oil pool to avoid wasteful methods. The Committee of Nine believes that any such agreement, even though it involve the control or curtailment of production from that pool, is not in violation of the antitrust law, either state or federal, but, since such fear exists, it thinks it should be removed as it acts as a serious deterrent to the making of co-operative agreements.

The second form of co-operative agreement, for the curtailment of drilling and production in periods of overproduction would, at present, the Committee of Nine believes, be in violation of the antitrust laws of some if not all of the oil-producing states and under some circumstances of the laws of Congress prohibiting restraint of commerce. Yet the Committee states:

"It is distinctly in the public interest that agreements between oil producers for the curtailment of drilling and production be permitted at times when serious overproduction exists or is immediately threatened."

The Committee's report epitomizes, as the way to conservation of oil, arguments for voluntary co-operation among producers familiar to readers of The Oil and Gas Journal. It points out that the production of oil has no relation to economic needs, periods of high or low production being due to quite other causes, primary and most important being the law governing the right of the owner of land to recover oil from it.

The suggestion that the law be changed so that each land owner be entitled to all the oil naturally in place under his land and no more, so that he may not drain oil from under his neighbor's land, is dismissed as wholly impracticable, aside from serious constitutional objections.

The only practical law, the Committee says, is that which now exists and which has been developed to meet the necessities of the case. Whatever remedy is found must be built on the basis of that law and adapted to meet the conditions caused by it.

Co-operative agreements for the development of a pool are offered as such a remedy, conserving the gas and increasing the recoverable percentage of oil. Possible constitutional difficulties and very great practical difficulties are recognized by the Committee as forbidding coercive power being used by the state to compel co-operation of producers in a pool.

"For the present, at any rate, we do not believe that any such drastic and difficult expedient should be attempted as that of imposing on the owners and operators of a field, or even a small minority of them, some plan to which they do not all agree. The matter is one to be brought about by voluntary agreement, if possible."

The industry has shown that voluntary agreement is possible. It would undoubtedly be more general if the fear of legal interference were removed.

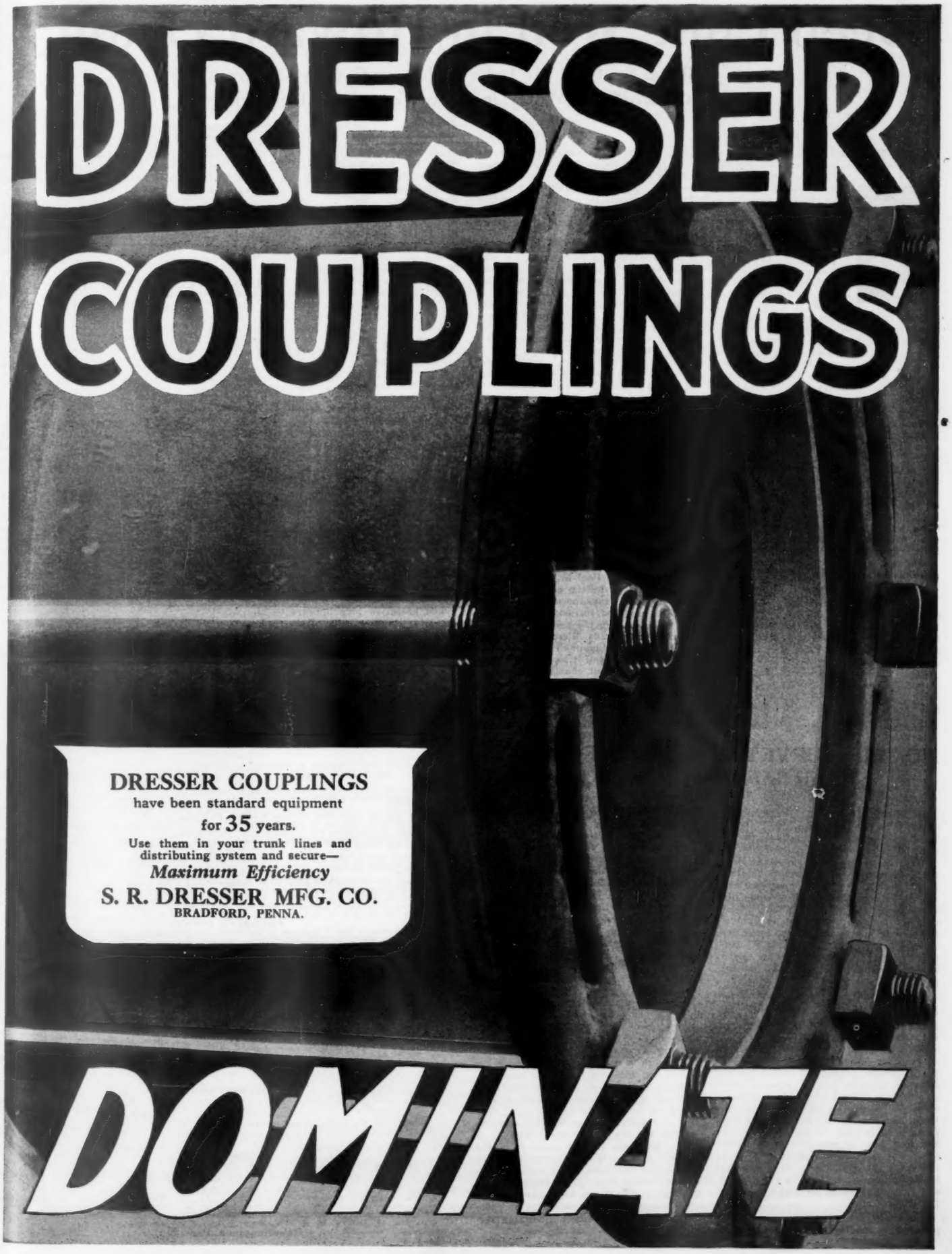
If co-operative agreements for the development and operation of a pool are desirable for the conservation of oil through greater recovery, co-operative agreements for the regulation of production in periods of overproduction which result in industrial disorganization and uneconomic use of oil, are just as desirable in any consideration of conservation of our petroleum resources.

The Committee of Nine recognizes, however, that Congress might hesitate to legalize such agreements without placing a supervisory power in some government agency which would assure the public that its interests would be safeguarded. The Committee suggests that such supervision might most appropriately be vested in the Federal Oil Board which has familiarized itself with the problems of the industry and has shown its understanding of what the industry needs to deal with them.

The purpose of the Committee of Nine is to harmonize legislation and administration with the facts of the oil industry. The antitrust laws as a whole are notoriously antiquated in the light of modern industrial conditions and particularly so in regard to the operations of the oil industry. With an administration capable of applying the rule of reason in their interpretation industry may function, but modern laws should be based on modern conditions.

The Committee was commendably cautious in declining at this time to suggest just what form gas conservation legislation should take. The industry is still studying the practical question and definite recommendations may well await the results, particularly since the state legislatures will not meet until next year.

The emphatic endorsement of amendment of the mandatory law requiring the Secretary of the Interior to offer for lease 100,000 acres of Osage lands annually regardless of the conditions of the oil industry, or the effects upon the Indians themselves, is another reminder to Congress of the urgency for this measure. So long as that mandate forces the exploitation of these Indian oil lands, even in the face of overproduction, the Government will be the most notorious obstacle to conservation.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Deep Lime Well in Howard County

Wildcat South of Big Lake in Reagan County to Stimulate Drilling. Water in Two More Winkler Wells

By James H. Dameron
Fort Worth Bureau, The Oil and Gas Journal

FORT WORTH, Tex., Feb. 6.—Another deep lime producer in Howard County, Reagan County's wildcat well south of the Big Lake Pool, the water situation in the Hendricks Field, scattered wildcat developments and a new peak in production summarizes the salient features of West Texas during the past week.

With two big producers from the lime completed and the third in the making, pipe line facilities out of Howard County have been taxed almost to the limit and as a result an equitable proration plan is being worked out by three producers and potential producers in the area.

Owens and Sloan's No. 2 Dora Roberts, 660 feet east and 50 feet north of the Magnolia Petroleum Co.'s No. 1 Dora Roberts, Section 156, Block 29, is rated as a 3,744-bbl. well from lime pay at 2,958-93 feet. A surprising feature of the area, however, was when Magnolia company's well went dead. After having averaged better than 3,000 bbls. daily for three months the well went dead last Friday morning. Late that afternoon the swab was run four times and the well came back making around 1,700 bbls. daily. The flow was steadily increasing when the well was shut in Saturday morning. Owens and Sloan's No. 2 Dora Roberts has been shut in.

Hole Full of Oil

Schermerhorn Oil Co.'s No. 1 Dora Roberts, south offset to the Owens and Sloan well, has a hole full of oil from pay at 2,967-80 feet. The well is to be swabbed in early this week.

When the Magnolia company well stopped flowing it indicated the pressure driving the oil was less than anticipated and the future of the much-feared area did not look as great. But when the swab restored the well the outlook again changed and the area appears to most operators as a big potential territory. However, it will be held back greatly should it develop into a big producing territory by virtue of inadequate pipe line facilities.

When operators in that area informally discussed an equitable proration plan it was reported that all parties concerned were satisfied a suitable proration plan would be worked out. That was taken to mean the Magnolia company, which has a trunk line outlet from the field, would co-operate with the operators in working out an equitable proration plan.

Reagan County Wildcat

Skelly Oil Co. and Utah Southern Oil Co.'s No. 1 University, SW cor., Section 33, Block 8, Reagan County, and south of the Big Lake Field, is to be put on the pump and tested. The well has 1,500 feet of oil in the hole from pay at 3,131-53 feet. It was drilled deeper to 3,157 feet and was making 1 bailer of water per hour from that depth. It is being plugged back to 3,153 feet. The water is salt water.

Estimates on what the well will do when put on the pump vary from 30 to 100 bbls. daily. Production, at the lowest estimate, however, it is believed, will stimulate considerable more drilling in the immediate territory.

Big Wells in Winkler

The Hendricks Pool in Winkler County was featured by the addition of several big wells, announcement of a new pipe line and the intrusion of water in two more wells in the pool. Over to the northeast, Amerada Petroleum Corp.'s No. 1 Walton is again drilling and last reports from the well it had made 4 more feet of hole without changing the status of the well.

Southern Crude Oil Pipe Line Co., transporting company for the Southern Crude Oil Purchasing Co., will loop its 6-inch line from the field to the loading rack at Wickett. Construction on the line is expected to start in the immediate future.

Roxana Petroleum Corp. got its "wild" well, No. 3 Ida Hendricks-C, Section 29, Block B-5, under control last week and the well looks bigger than the big well of the pool which made 1,115 bbls. with 500 pounds back pressure on it. No. 3-C topped the pay at 2,912 feet last week, blew the connections off and flowed wild at an estimated rate of 10,000 bbls. daily. When it was brought under control the well made 1,041 bbls. through a three-quarters-inch choke. It was pinched down and during the first 24 hours it made 4,553 bbls.

Cut oil appeared in three more wells in the field last week and increased the number of wells showing water to 24. Pure Oil Co.'s No. 2-A Hendricks, Section 41, Block B-5, showed 9 per cent b.s. and water when pinched to 500 bbls. daily. Texon Oil & Land Co.'s No. 1-A Hendricks showed 25 per cent b.s. when pinched to 2,000 bbls. daily. The oil is being treated. Several of the wells showing b.s. or water or both are being plugged back. Humble Oil & Refining Co.'s No. 3-B Hendricks is the latest well showing water and it is reported to be making 40 per cent water.

Good Shallow Wells in Yates

The Yates Pool finished the week with several good shallow wells and increased the potential production of that pool several thousand barrels.

The proration plan appears to be assured for the remainder of the first half of 1928. When the revised figures for basing proration production on the proven acreage plan were presented to operators they were accepted without a dissenting vote. A meeting was not necessary as the figures were mailed to each operator. As a result 1,000 acres was cut from the proven acreage of the Yates Pool when compared to the December 1, figures. Following are the percentages by companies:

Company—	Pct.	Prov'n. Acr'ge Feb. 1	Prov'n. Acr'ge Dec. 1
Mid-Kansas	34	5,163	4,833
California	16	2,361	2,273
Gulf	15	2,490	2,559
Roxana	8.4	1,361	1,561
Humble	7	1,109	1,214
McMan-Marland	5	697	697
Marland	2	119	119
McMan	1		
Simms	6	893	893
Red Bank	1	133	140
Mazda-Savoy	0.6	80	80
Kirby-Edson	0.5	85	80
Pandem	0.5	59	24
Osage et al	..	....	...
	100	14,030	15,011

In Jones County, Hutson and Weaver's No. 1 Smith, Section 51, Block 18, T. & P. R. R. Survey, is being drilled deeper. The well is now estimated to be a 75-bbl. well at 2,499 feet. Drilling has been suspended until water coming from behind the casing is shut off and cavings are cleaned out.

Fisher County went into the production reports for the first time last week and The Texas Company's wildcat, the first producer in the county, averaged 175 bbls. during the week. Oil is being shipped out of the county by tank cars.

Over in Culberson County, where Scott and Dittman are drilling in Section 1, Block 97, there is considerable interest. The well has had small showings at sev-

(Continued on Page 262)

HUMBLE SURVEYS FOR LINE FROM NEAR SAN ANTONIO TO HOUSTON

HOUSTON, Tex., Feb. 7.—Preliminary surveys to determine the feasibility of building a pipe line from its Lytle station, 20 miles southwest of San Antonio, to its Webster tank farm, south of Houston, have been started by the Humble Pipe Line Co. No plans have been made for the construction of the proposed line itself as the line probably will be laid only in the event the company loses its fight in the courts of Texas to build deep water loading racks in the Gulf off Mustang Island at Ingleside, near Corpus Christi, according to officials of the company.

The present line from West Texas fields to the Gulf with its southern terminus at Ingleside was built only with a view to establishing deep water loading facilities there. If the company under court order is unable to go ahead with the Ingleside project, it naturally will have to build a line to another point where deep water loading is available in order to provide an adequate outlet for West Texas crude. As the Webster tank farm is accessible to deep water, the company now is considering the possibility of laying a line to that point in the event the company is not permitted to lay a line across Corpus Christi Bay and to loading racks in the Gulf off the Ingleside terminal.

The Ingleside terminal at present only permits the loading of boats in the government channel to a depth of 23 feet, or only to 60 per cent of their cargo. This necessitates boats going to deeper water to complete their cargoes.

The company's original plans called for the laying of a line from the Ingleside terminal across Corpus Christi Bay and Mustang Island and a distance of 2 miles into the Gulf to loading racks to be built in water 50 feet deep. The pipe line, from West Texas to Ingleside, completed last year, was built only with a view to the company's providing deep-water loading facilities there, according to officials of the company. Since the company started dredging to lay the line across the bay, the State of Texas last week obtained a temporary injunction preventing the company from going ahead with the project. This was obtained on protest of state officials that the line would trespass on state property and that leakage in the line would kill the fish. The company, however, has appealed the decision and the case will come up for hearing February 10, and it will not be until then that any definite action will be taken regarding the Webster proposed line.

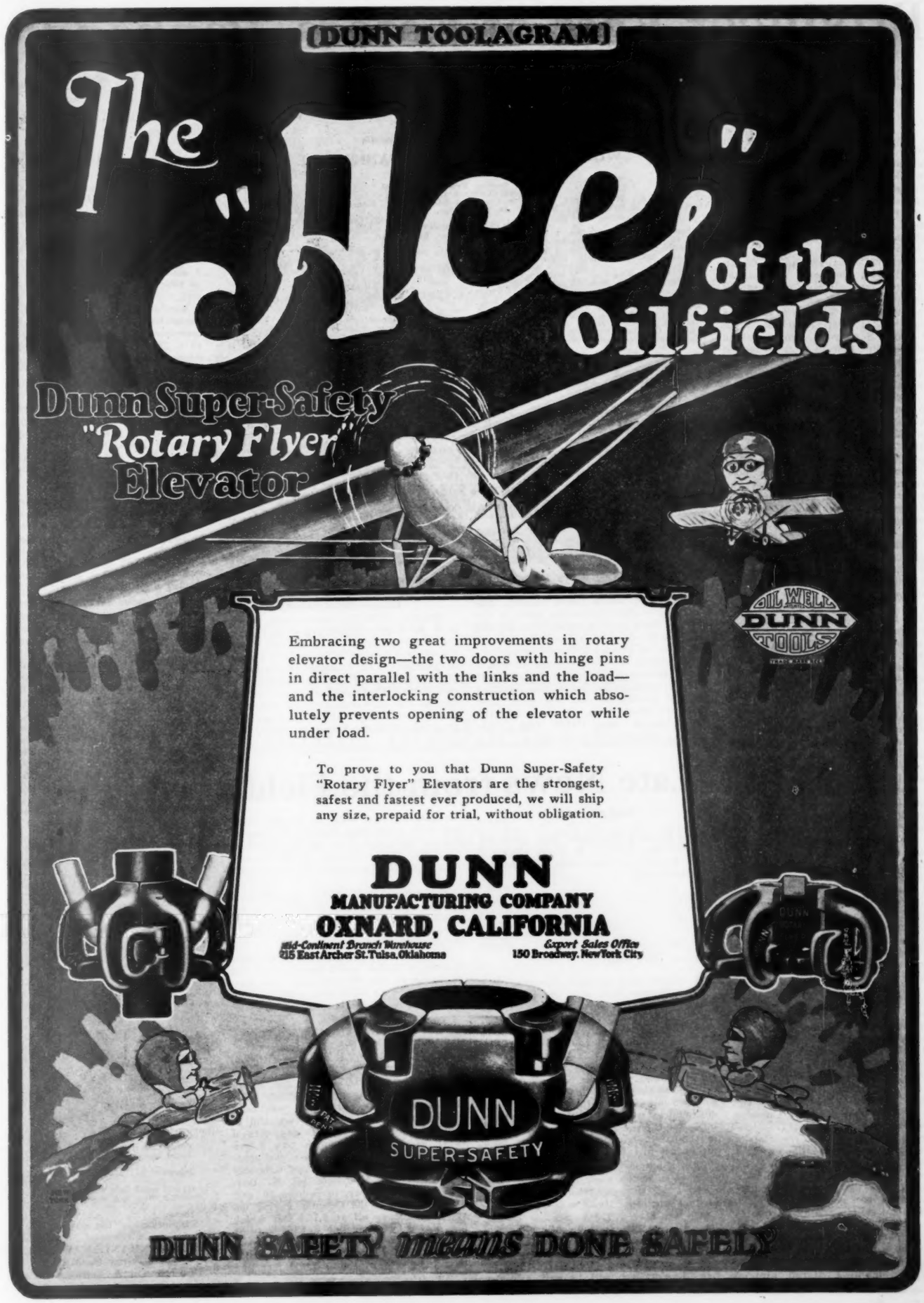
The alternate line proposed from the Lytle station to Webster would extend a distance of 230 miles, Lytle station being on the present West Texas-Ingleside line. The latter line covers an entire distance of 400 miles and was built to Ingleside as that was the closest tidewater terminal.

WILDCAT OPERATIONS IN WEST TEXAS

Week ending February 4, 1928

Company, farm and location—	Remarks—
ANDREWS COUNTY	
George B. Calvin's (was Calvin & Belt's) No. 1 Ratliff & Bedford, C NE Sec. 16, Blk. A-54	Hole full fresh water 1,055 ft.; top salt 1,610 ft.; shut down 4,003 ft.
J. S. Cosden's No. 1 Ratliff & Bedford, C SE Sec. 8, Blk. 73, Public School Land	Top salt 1,585 ft.; shut down 4,116 ft.; will deepen.
Deep Rock Oil Co.'s No. 1 W. J. Harris, C SE Sec. 12, Blk. A-46, Public School Land, elev. 3,167 ft.	Hole full fresh water 1,050 ft.; top salt 1,690 ft.; drlg. 2,120 ft.
B. B. McKennon's (was Neff et al's) No. 1 J. S. Means, C SE Sec. 12, Blk. A-35, Public School Land	Set 8-in. 1,530 ft.; drlg. 1,860 ft.
A. G. Carter & Zweifel's No. 1 Cowden, C SE Sec. 18, Blk. A-52, Public School Land Sur., elev. 3,156 ft.	Top salt 1,375 ft.; encountered pocket of air 3,635 ft.; total depth 5,000 ft.; contract complete.
BORDEN COUNTY	
Dixon Creek Oil Co.'s No. 1 Clayton & Johnson	R. O. G.
Marland Oil Co.'s No. 1 G. E. McDavid, C SW Sec. 156, Blk. 25, H. & T. C. Survey., elev. 2,310 ft.	Run. 10-in. 2,120 ft.
Marland Oil Co.'s No. 1 Alexander Murphy, C SW Sec. 66, Blk. 25, H. & T. C. Sur. (3,250-ft. test)	New location.
BREWSTER COUNTY	
Cowden & Bowser's No. 1 Jackson & Harmon	Drlg. 310 ft.
J. M. Hickey's No. 1 Jackson & Harmon, NE cor. Sec. 182, Blk. 9, G. H. & S. A. Sur.	Drlg. lime 825 ft. (cor. depth).
Mid-Kansas O. & G. Co.'s No. 1 Turney, Sec. 77, Blk. 213, T. & St. L. Sur.	Drlg. 2,740 ft.
Reese & White's No. 1 Kimbale, C NE Sec. 204, Blk. 9, G. H. & S. A. Sur.	Shut down 1,390 ft.
Van McPhail's No. 1 McIntyre, SE cor. Sec. 59, Blk. 352, 7 mi. S of Alpine	Drlg. red beds 1,400 ft.
Wilcox & Anderson's No. 1 Gage, Sec. 8, Blk. 300, T. C. R. R. Sur.	Underreaming 1,901 ft.
COKE COUNTY	
W. H. Brown et al's No. 1 W. L. Foster, SE cor. Sec. 142, Blk. 2, H. & T. C. Sur., elev. 2,222 ft.	Drlg. lime 3,175 ft.
Lipan Oil Co.'s No. 1 S. M. Conner, Sec. 71, Blk. 2, H. & T. C. Sur.	Show oil 1,224-34 ft.; shut down lime 3,317 ft.
Lipan Oil Co.'s No. 1 E. C. Rawlings, Sec. 390, Blk. 1-A, H. & T. C. Sur., elev. 2,750 ft.	Total depth 2,736 ft.; shut down.
CONCHO COUNTY	
Parks & Lawson's No. 1 Schultz	Show oil 925 ft.; shot with 40 and 30 qts.; no results; shut down 1,500 ft.
The Exploration Co.'s No. 1 Hartgrove, Blk. 240, J. Schouch Sur., elev. 1,718 ft.	Set 10-in. 760 ft.; shut down 930 ft.
Sartain Oil Co.'s No. 1 Evridge	Spudded and shut down.
CRANE COUNTY	
Crane Dev. Co.'s No. 1 J. R. Mosley, S cor. Sec. 18, Blk. 6, H. & T. C. Sur.	Top salt 819 ft.; shut down 1,735 ft.
Gulf Prod. Co.'s No. 3 W. N. Waddell, SE cor. NE Sec. 3, Blk. B-25, Public School Land	Total depth 3,060 ft., gray lime; pulling 12½-in. casing.
J. K. Hughes Dev. Co.'s No. 1 State Bank Commission, CSL Sec. 18, Blk. 4, H. & T. C. Sur.	Location.

(Continued on Page 210)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Producer East of Lefors, Panhandle

Gray County Wildcat of The Texas Company Makes 885 Bbls. Bowers Pool, Gray County, Has 800-Bbl. Well

By James H. Dameron
Staff Correspondent, Texas Panhandle

FORT WORTH, Tex., Feb. 6.—Panhandle was featured by the Bowers Pool in Gray County, a rise in production and The Texas Company's semiwildcat strike east of Lefors in Gray County; Wichita Falls district was colored by the consummation of $100,000 deal and the Ranger district finished up the week with excitement in several areas.

The Texas Company's No. 4 G. H. Saunders, along the north line of the J. G. Eustes Survey, Gray County, about 3 miles east of Lefors, was the big event of the Panhandle. The well has been showing signs of creating excitement for several days. Sunday it came in making 885 bbls. of pipe line oil from 20 feet of granite wash pay at 2,720-40 feet.

Practically all of the acreage surrounding the well is under The Texas Company lease. The Skelly Oil Co., Gulf Production Co. and Magnolia Petroleum Co. own the choice pieces of acreage around the well outside of that held by The Texas Company. No. 4 is the fourth well to be put down on the Saunders land by The Texas Company. One was a dry hole, another was a gas well and another was a producer. As a result of the find Panhandle operators have focused their attention more closely to central eastern Gray.

Bowers Pool Complete

Aside from the developments in that area Panhandle furnished little in the way of exciting news from the other wildcat and semiwildcat areas. The only completion in the Bowers Pool was Danciger Oil & Refining Co.'s No. 6 W. Jackson. It started out at the rate of 130 bbls. per hour, but slowed up and made 1,090 bbls. the first 24 hours. The second 24 hours the well made 900 bbls. and the third 800 bbls.

Production of the Panhandle showed a 4,900-bbl. increase when the production of Gray County climbed 6,000 bbls. All other counties, save Potter County, recorded normal decline in old wells which was not offset by new production. Several new wells are due in from the Bowers Pool. Danciger Oil & Refining Co.'s No. 8 Jackson, Section 88, Block B-2, came in Monday and made 1,090 bbls. the first 24 hours from a total depth of 3,072 feet. Bowers, however, has proved erratic in several instances and new wells cannot be counted on too strongly in boosting production of the pool by leaps and bounds.

Field work, which has been showing a steady increase in recent weeks, slumped off slightly during the past week with only two new locations being reported. Only one additional completion was reported from the field besides the two in Gray County, that was a 160-bbl. well in Hutchinson County.

Wichita Falls Dry Holes

Wichita Falls district reported an unusual large number of dry holes during the past week and nothing of a sensational nature was disclosed. Field work, however, showed an increase and a survey of the district revealed 310 operations under way. Wildcats in Archer County, as well as other counties of the district, are being carried on at a brisk pace. The heaviest drilling is in the Rock Crossing area, southeast Wilbarger County.

The completion report of the district showed a sharp increase as the result of a number of old completions being reported. These are wells that were completed some time ago but inadvertently not reported at the time.

One of the most important transfers of producing property made in the district for several months was made last Saturday. Perkins-Cullum interests, Wichita Falls, purchased from W. C. Woody, T. H. Perry and J. J. Moran, also of Wichita Falls, two leases totaling 87½ acres in the Graham Stewart farm, A. Rohus Survey, north Young County. The leases have eight producing wells in the shallow sand with a production of 134 bbls. daily. The consideration was reported to be around $100,000 cash.

Production of Wichita Falls showed a slight increase. The old Burkburnett Field dropped below 10,000 bbls. in daily average production for the first time since its boom days. A week ago the field's output was 10,050 bbls.; this week, however, production amounted to 9,985 bbls.

Ranger Developments

Ranger district's report was spiced with developments scattered throughout the territory. Coleman County and Brown County are coming in for the lion's share of publicity. In Coleman, Gwinnup & Bradstreet's No. 1 Morris, northeast of the Morris Pool, opened several weeks ago by the Eastland Oil Co. and associates, has a hole full of oil from sand at 1,985-86 feet. Five-inch casing was set at 1,975 feet and the well is being drilled in.

To the south, Eastland Oil Co.'s No. 3 Morris failed to find the sand when drilled to 2,115 feet. Same company's No. 1-B Morris, east offset to the discovery well, made 50 bbls in three hours from sand at 1,996 to 2,002 feet. Gwinnup & Bradstreet's well will probably be given a small shot if the well does not rank in production with the Eastland Oil Co. well.

Southeast of Coleman Levy Smith and associates' No. 1 Breneke, which was completed during the middle of January as a 25-bbl. well at 1,850-55 feet, was deepened two feet and is flowing 60 bbls. by heads.

In Stephens County Hickok Production Co.'s No. 1 Hamil is holding up well. The well is flowing 210 bbls. daily from 4,053-57 feet and making 1,000,000 feet of gas with a gasoline content of 2.3 gallons per 1,000,000 feet of gas. Brooks-Halon, Inc., were laying 7,000 feet of 6-inch line to connect with the well.

Cook Ranch Activity

Shackelford County continues to be active as a result of activity in the Cook Ranch Pool. Three wells were completed on the Marland Oil Co. and Roeser and Pendleton leases with a combined production of 738 bbls. The drilling in of several wells in that pool is boosting the Ranger district production.

Sixteen miles northwest of Brownwood two new wells were completed in the Pandem Pool. Pandem Oil Co. completed a 330-bbl. well in that pool and the oil tested 43 gravity. Syndicate Oil Co. completed a 190-bbl. well in the pool.

One and one-half miles southwest of the Pandem Pool Cranfill and Reynolds' No. 1 Newton was completed making 72 bbls. at 1,129-50 feet. The well is 1,100 feet south of H. L. Allcorn's No. 1 Newton, which is just east of the Fry Pool.

Production of the three districts showed a 5,800-bbl. increase due principally to the Panhandle production increase. Production of the districts are as follows:

NORTH CENTRAL TEXAS
Estimated Daily Average Production for the Week Ending February 4

Panhandle District—	
Carson County	7,370
Gray County	23,045
Hutchinson County	49,095
Moore County	6
Potter County	20
Wheeler County	1,065
Total this week	80,605
Total last week	75,710
Increase	4,895
Wichita Falls District—	
Archer County	20,304
Baylor County	66
Clay County	505
Cooke County	3,914
Jack County	1,192
Montague County	9,556
Throckmorton County	1,119
Wichita County	26,403
Wilbarger County	10,464
Young County	9,574
Total this week	83,095
Total last week	83,066
Increase	29
Ranger District—	
Brown County	15,339
Callahan County	4,183
Coleman County	1,229
Comanche County	1,305
Palo Pinto County	441
Ranger County	8,087
Shackelford County	7,451
Stephens County	8,872
Total this week	46,907
Total last week	46,108
Increase	799
Grand total this week	210,607
Grand total last week	204,784
Increase	5,823

Completions of the district are as follows:

TEXAS PANHANDLE COMPLETIONS
Gray County
Danciger Oil & Refining Co.'s No. 6
(Continued on Page 262)

WILDCAT OPERATIONS IN PANHANDLE

Week Ending February 4, 1928

Company, Well, Farm, Name, Section and Block—	Remarks—
ARMSTRONG COUNTY	
United Oil & Trust Co.'s No. 1 J. P. Reck, Sec. 162, Blk 4, H. & G. N. Sur.	Drlg. lime, 3,500 ft.
BAILEY COUNTY	
Gibson Oil Co. et al's No. 1 Webb Miller, NE cor. Sec. 15, League 186, Swisher County school land	Rig.
Humble O. & R. Co.'s No. 1 W. H. Fuqua, C E ½ Sec. 117, Blk. A. Melvin, Blum & Blum Sur.	Set 6-in., 3,078 ft; drlg., 3,220 ft.
BRISCOE COUNTY	
C. S. Rice's No. 1 J. C. Anderson, SE cor. NW NW, Sec. 22, Blk. B-3, B. S. & F. Sur.	S.D., 1,620 ft.
CARSON COUNTY	
Amatex Dev. Co.'s No. 1 E. S. Polling, Sec. 22, Blk. 2-Y,	T.A., 2,110 ft.
Empire G. & F. Co.'s No. 1-A Texas Co. fee, C NE, Sec. 60, Blk. 4, I. & G. N. Sur.	Spudding.
Marston Oil Co.'s No. 1 J. L. Noel	Drlg. 2,800 ft; corrected depth.
Navajo Oil Co.'s No. 1 E. S. Polling, Sec. 22, Blk. 2-Y	Set 6-in., 2,496 ft; S.D., 2,712 ft.
The Texas Company's No. 2 C. R. Garner	25,000,000 ft. gas, 2,300-25 ft; S.D., 2,425 ft.
The Texas Co.'s No. 1 W. H. Cobb, NE SE SE, Sec. 202, Blk. 3, I. & G. N. Sur. (Lease S 100 A SE)	Rig.
Willis et al's No. 1 Burnett est., C SE SW NW, Sec. 111, Blk. 5	T.D., 2,050 ft; C.O.; show oil, 3,010 ft; show wtr., 3,040 ft; lime; pull. 6-in., 3,192 ft.
CASTRO COUNTY	
Colorado O. & R. Co.'s No. 1 M. Slemmons, SW cor. Sec. 73, Blk. M-17, B. S. & F. Sur.	Rig blown down.
Mystery Oil Co.'s No. 1 J. I. Crum, SE cor. NE Sec. 333, Blk. M-6, S. K. & K. Sur.	S.D., 510 ft. for csg.
CHILDRESS COUNTY	
Hoover & Calloway's No. 1 O. L. Tucker, Sec. 736, Haggard Sur.	Spudded and S.D.
C. L. Sloane et al's No. 1 B. P. Smith, Sur. 49, F. P. Knott lands	Set 6-in., 2,902 ft; drlg., 3,750 ft.
COTTLE COUNTY	
Exploration Co.'s No. 1 Richards	Spudded and S.D.
DALLAM COUNTY	
Wood Bros. et al's No. 1 Capitol Synd., Sec. 19, Blk. 17.	Hole full wtr., 4,007-4,127 ft; U.R., 4,240 ft.

(Continued on Page 89)

Late News from the Field

OKLAHOMA

The Greater Seminole area produced 323,485 bbls. for the 24 hours ending 7 a.m., Tuesday of this week. The output by pools was:

	Bbls.
Little River	35,421
Bowlegs	91,011
Earlsboro	119,588
Seminole	58,900
Searight	18,565
*Total	323,485

*From 1,085 wells.

A wildcat well in Grant County, close to the Kansas line, was the important late news of the week. The well was Bailey and others' No. 1 Custard, C SE, Section 18-27-5w, and it picked up a sand 4,835-37 feet which made a little gas estimated at 200,000 feet. The position of the sand is about 700 feet above the Wilcox formation. There is both oil and gas production found at a depth of 4,000 feet some 18 miles east of this well, and various wildcat wells have picked up showings, but the presence of gas in this well is the first showing which has been picked up so far west.

The Seminole area was quiet in the early part of the week, with every indication that the shutdown agreement in all pools except Maud will come to a finish on March 1. A meeting of the Seminole operators is to be called for some time next week and at this meeting, the actual plan of operating the pools will be voted upon. It is likely that the new development will be drilled under the plan of two wells to the 40 acres, but it is extremely doubtful if the operators will agree to any plan which calls for the exclusion of the torpedo wagon, or the suspension of the air-gas lift.

Following the completion of the Prairie Oil & Gas Co.'s No. 5 Davis, in the southeast part of Earlsboro, there will be several new locations made in that region during this week.

The Barnsdall Oil Co.'s No. 1 Hotulke, in Section 22-7-6, which found a hole full of water in the Wilcox sand, has been plugged back to 4,205 feet, and is swabbing 70 bbls. daily with no water.

ARKANSAS

SHREVEPORT, La., Feb. 7.—Oil Well Corp. and Magna Production Co.'s No. 1 Dumas, Section 11-17-14, in the southwest extension of the Champagnolle Field of Union County, Arkansas, was completed Sunday at 3,065-69 feet and is blowing 15,000,000 feet of gas with a spray of light oil through two 4-inch flow lines with 1¼-inch choke and separator. Location is about a half mile east of the Garrett Modisette (C. E. Murdock) No. 1 Gregory, in Section 10, and 300 feet deeper, the Gregory having developed a heavy oil at 2,760 feet which the Magna well missed, testing dry at 2,864 feet. Wells in the discovery pool of the Champagnolle produce a paraffin base light oil at around 3,000 feet and

(Continued on Page 249)

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Prairie Gets Big Well at Earlsboro

Completion May Result in Drilling 30 Other Tests. Pottawatomie County Producer Attracts Much Attention

By J. L. Dwyer
Staff Correspondent, Oklahoma Fields

A large well at Earlsboro, a well at Pearson making 2,700 bbls. from a sand which has not been definitely identified, a few notes from the Osage, a steady output from Seminole, a good well in Okfuskee County, and some gas in a wildcat well in southeastern Oklahoma, featured the week in the Oklahoma fields.

The Prairie Oil & Gas Co.'s No. 5 Davis, SE cor. NW NW, Section 13-9-5, in the southeast part of the Earlsboro Pool, made 250 bbls. hourly from the Wilcox sand 4,337-47 feet. The well had the Viola at 4,234 feet, and is running rather high for this part of the pool. It is very important because it will very likely be the cause of a drilling activity which will bring into play that part of Earlsboro situated between the main body of production, and the Prairie Oil & Gas Co.'s No. 1 Baker, in Section 24-9-5, which has been pinched in under the shutdown agreement. There has been a growing feeling that this region has ample room for another pool which will be above the water line and probably 30 tests will be drilled in the region some time this spring or summer. The Prairie's Davis well is the best producer to be recorded for the Greater Seminole region in some time.

Speaking of the Greater Seminole region, it is not registering the rapid decline which many anticipated in spite of the finish of the shooting campaign. The drop has been approximately 9,000 bbls. per week for the past two weeks, and the field may be expected to continue this rate of decline for the immediate future. There will be a flattening point in the drop which will very probably resemble the decline curve of the Seminole City Pool. This pool remained between 75,000 and 60,000 for a long period, and now with practically no flush production to sustain it, the pool is hanging above 50,000 bbls. daily after 18 months of producing life.

It should be considered that Seminole City probably possessed the most prolific body of sand of any of the Greater Seminole Pools. It was real fine sand, and almost free from the limey qualities which the producing stratum of the remaining pools possessed, and for this reason, it is extremely likely that its decline will be more slow than the other pools. There is, however, a certain amount of drilling in the remaining pools which will to a certain extent offset this difference in sand conditions. Looking at the Seminole picture from a matter of past performances, it seems logical that the Greater Seminole area should continue a drop of from 9,000 to 12,000 bbls. per week for the next few weeks.

Okfuskee Producer

In Okfuskee County, an exceptional performance was made by the Riverland Oil Co.'s No. 1 Barnett, SW cor. SE SW, Section 19-11-11, which was originally completed in November, 1927, as a gas well. It was drilled down to the Wilcox sand found at 3,592-3,648 feet, and started making 1,065 bbls. It was squibbed with 5 quarts and immediately began flowing 3,500 bbls. of clean oil with no water. There is some Wilcox sand production adjacent to this well, but water is produced along with the oil in the remaining wells.

The star performance of the week was made by the Indian Territory Illuminating Oil Co.'s No. 1 Sullivan, SW cor. NW SE, Section 25-7-3, in Pottawatomie County, 18 miles west of the Little River Pool. The Sullivan well found a formation which started unlimited discussion, and began flowing 2,700 bbls. daily. The depth was reported from 4,204-13 feet, and at first it was thought that the production was coming from the Viola lime. It is now believed that the oil is coming from the Simpson sand which was probably scratched. The offset well immediately west of this is owned by the Magnolia Petroleum Co. and was completed last November for 365 bbls. in the Viola formation. It was making 300 bbls. when the Sullivan well touched the sand, and the day after the Sullivan well was drilled in, it quit flowing. Tools are now being run and the well will be deepened.

Regardless of what formation is responsible for the oil, this well has caused additional interest in this part of the State, and has once more brought Pottawatomie County into prominence. There is some Hunton lime production in the Pearson Pool, 2 miles east of the new well, and it is very likely that many of these wells will be deepened in hopes of obtaining additional production. The leases for 2 miles around the new well are all in the hands of the larger companies, and should the pool spread, it presents an ideal situation for limiting drilling.

Just 6 miles east of this new find, the Mid-Continent Petroleum Corp. and the McCulloch Oil Co. of Okmulgee, Okla., have a well which has made two flows from the Simpson sand tapped 4,137-65 feet. The well is No. 1 Smith, NW cor. SE Section 25-7-4. It is now shut in for tankage and will be tested out later in the week.

Should these two wells be making their oil from the Simpson sand, it will offer less danger than if they were making their output from the Wilcox, as the former is regarded as more freakish, and more liable to pinch out in a few locations. There never has been a Simpson sand of any appreciable area in the Mid-Continent Field.

In Pittsburg County, Pattison and others' No. 1 McDuff, SW cor. NW SE Section 32-9-16, found sand that has identified as the Cromwell from 4,504-13 feet with 3,500,000 feet of gas. This well had the characteristic gas showings so common to Pittsburg County. There was 1,000,000 feet of gas from 1,880-95 feet.

In Muskogee County, a well of unusually high gravity oil is Hale & Ford's No. 2 Clark, SE cor. SW NW SE Section 6-14-19, which is making 15 bbls. hourly from sand 512-522 feet. The oil is 43 degrees gravity.

In the Wetumka district of Okfuskee County, the Mid-Continent Petroleum Corp.'s No. 1 Morris, NE cor. SW NW Section 29-10-9, had the Misener sand 3,894-99 feet and is now making 200 bbls. of oil and 500 bbls. of water.

In the Burbank district of Osage County, the Kewanee Oil & Gas Co.'s No. 2, SW SE NE Section 28-27-6, flowed 500 bbls. the first 16 hours from the regular Burbank formation 2,893-2,972 feet. No. 5 NE SW NE, Section 28-27-6 made 740 bbls. in 12 hours from sand at 2,874-2,912 feet.

Little River Dry Hole

A dry hole in the Little River district prompts the thought that some of the potential producers will do very little to disturb the market when they finally touch the sand. The Sinclair Oil & Gas Co. and Darby Petroleum Co.'s No. 1 Unknown, NW cor. SW Section 5-7-7, found a hole full of water in the Wilcox sand at 4,530 feet, and the pipe is being pulled preparatory to abandoning the well. This was only half a mile south and a quarter mile east of the Mid-Continent Petroleum Corp.'s No. 1 Smith which found good production to the east of Little River. The low position of the Sinclair-Darby well indicates that the Mid-Continent well will probably be cut off from the main body of the pool.

Another Wilcox sand dry hole in the Pearson area is the Prairie Oil & Gas Co.'s No. 1 Jones, SW cor. NE SE Section 19-7-4, which had a hole full of water at 4,245-65 feet and will be abandoned.

The pipe line runs from the Seminole area for the week ending February 3 show that 282,963 bbls. was the daily average quantity of oil moved out of the field by pipe lines. There is now 2,000 bbls. daily being shipped out of the field by tank cars. The pipe line runs and their distribution follow:

Barnsdall	10,176
Consolidated	2,046
Mid-Continent	7,161
Empire	8,913
Gulf	24,670
Magnolia	42,762
Oklahoma	38,139
Ozark	14,749
Prairie	52,786
Pure	6,016
Shaffer	7,361
Sinclair	40,070
Texas	21,794
Tidal	4,197
White Oak	2,193
Total, barrels	282,963

Seminole Production

Production of the Greater Seminole area by leases and companies, February 3, was as follows:

Little River

Company, farm—	Wells	Prod.
Amerada:		
Fore	2	1,196
Nitey	2	2,035
Barnsdall:		
Hotulke	1	....
Blackwell:		
Nitey	7	3,765
Carter:		
Fish	4	1,410
Jackson	1	100
Continental:		
Cosar	2	660
Gypsy:		
Brown	1	50
Campbell	2	137
Nungee	1	50
Pottey	3	643
Wadsworth	1	....
Independent:		
Harris	1	136
Davis	2	1,995
Indian Territory:		
Campbell	1	154
Dungan	3	2,863
House, M. A.	1	340
House, W. E. "A"	1	31
House, W. E. "B"	3	1,830
Jackson	3	2,410
McCulla	3	1,920
Nitey	7	1,530
Phoebe, "A"	2	930
Phoebe, "B"	3	945
Reed	1	31
Soketheche	4	1,000
Hull	1	....
Magnolia:		
Cruse	1	720
Pottey	2	665
Mid-Continent:		
Wadsworth	7	1,130
Smith	1	60
Pine & Phillips:		
Pottey	2	1,562
Prairie:		
Dungan	2	165
House	4	2,230
Roxana:		
Smith	1	31
Shaffer:		
Narcone	1	....
Sinclair:		
Cosar	1	1,180
Superior:		
Wadsworth	1	31
Snowden-McSweeney:		
Tiger	1	....
Texas:		
Coker	3	960
Tidal:		
House	3	1,720
Johnson	1	31
Total, Little River	96	35,460

Maud

Barnsdall:		
Fife	1	....

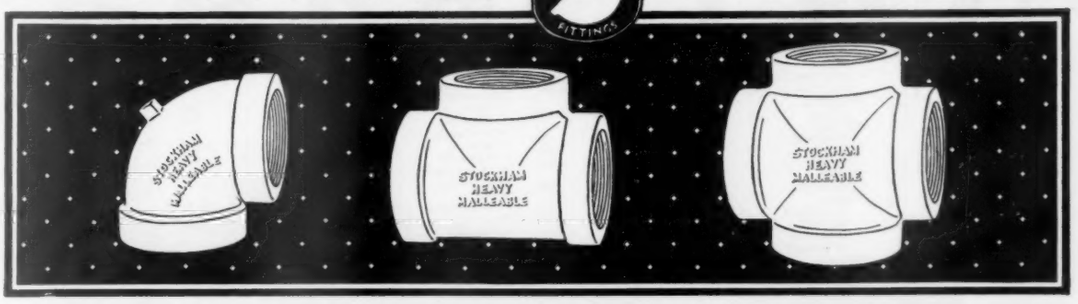
OKLAHOMA WILDCATS

NORTHERN OKLAHOMA

Otstot Development Co.,s No. 1 Snyder, NE cor. NE Sec. 6-28-3w	Shut down 4,515 ft.
Kopisch Oil Co.'s No. 1 Unknown, NE cor. SE Sec. 24-27-21w	Rigged up and shut down.
Sooner State Oil Co.'s No. 1 Unknown, C SW Sec. 20-27-15w	Rig.
J. V. Bailey and others' No. 1 Maddox, C SE Sec. 18-27-5w	Hole full water 4,321 ft., fishing 4,605 ft.
Thraves and others' No. 1 C. D. Fuss, SW cor. NW NW Sec. 30-27-4w	Shut down 1,230 ft.
Burns & Beasley's No. 1 Bolsterton, SW cor. NW SW Sec. 24-27-3w	Rig.
Boucher and others' No. 1 Cooper, SE cor. SE Sec. 23-27-2w	Rigging up.
Brasil & Moses' No. 1 Goutier, SW cor. NW Sec. 34-26-4w	Shut down for pipe 650 ft.
Lambert and others' No. 1 Tabor, SE cor. NE SE Sec. 23-26-3w	Spudded and shut down.
Ponca Lee Oil's No. 1 McNeil, NW cor. NE Sec. 32-26-2e.	Shut down 2,670 ft.
Hoffer Oil's No. 1 Cooper, NW cor. SE SE Sec. 12-25-22w.	Shut down 4,130 ft.
Victor Oil Co.'s No. 1 Buskirk, SW cor. SE Sec. 10-25-15w	Hole full water 775-800 ft., shut down 900 ft.
Cowden and others' No. 2 Vollmer, CEL NE SW Sec. 22-25-4w	Fishing 5,640 ft.
Tonkawa Development Co.'s No. 1 McDaniels, SE cor. SE Sec. 15-25-1w	500,000 ft. gas; 3,980-88 ft.; shut down, 4,475 ft.
Miller & Geyer's No. 1 Albright, NW cor. SE Sec. 10-25-1	Shut down 3,960 ft.
Otstot Development Co.'s No. 1 Simmons, SE cor. SE Sec. 32-24-17w	Shut down for pipe 1,490 ft.
McCray Oil & Gas Co.'s No. 1 Whitney, NE cor. NW SE Sec. 19-24-14w	Shut down 1,880 ft.
E. L. Love and others' No. 1 White, SE cor. NW Sec. 9-24-6w	Hole full water 4,650 ft., shut down 4,720 ft.
Failing and others' No. 1 Gorsuch, SE cor. SE Sec. 14-24-3w	Drilling 4,000 ft.
Wight & Wahl's No. 1 Unknown, C NW Sec. 16-23-20w.	Rig.
Randau & Mooney's No. 1 Parker, SE cor. NE NW Sec. 4-23-16w	Shut down 1,092 ft.
Fleming and others' No. 1 Wengert, NW cor. NW Sec. 3-22-5w	Shut down 750 ft.
Oklahoma Northern's No. 1 Young, NW cor. NW Sec. 9-21-25w	Fishing 235 ft.
Sharon Oil Co.'s No. 1 Elmore, SW cor. SW Sec. 25-21-21w	Shut down 2,772 ft.
Burgoyne Brothers' No. 1 Unknown, SW cor. SE NE Sec. 15-21-19w	Shut down 490 ft.
Beopple and others' No. 1 Schweer, C SW NE Sec. 12-21-4w	Shut down 1,850 ft.
Corley and others' No. 1 Williams, SE cor. NE SW Sec. 7-21-1w	Shut down for casing 1,920 ft.
Barnsdall Oil Co.'s No. 1 Bumberger, NE cor. NW SE Sec. 11-21-1	Cellar.
Marland and Barnsdall's No. 1 Looman, NE SE Sec. 9-20-4w	Drilling line 5,724 ft.
Marland Oil Co.'s No. 1 Miller, SW cor. SW Sec. 12-20-4w	Shut down 4,575 ft., waiting on test Sec. 9-20-4w.
Slick & Harrington's No. 1 Cromer, SE cor. NE NE Sec. 25-19-5w	Location.
Champlin Refining Co.'s No. 1 Clark, SE cor. SW Sec. 3-19-4w	Drilling 4,570 ft.

(Continued on Page 89)

STOCKHAM FITTINGS



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MADE from special patterns in every size, to particularly meet oil field necessities, the Stockham Heavy Malleable Line has every quality to meet the requirements for service in refinery pipe lines.

From the selection of the raw metal, by Stockham metallurgists on through to finished fittings, Stockham Malleables are subject to quality control.

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There are over 4,000 patterns in the complete line of Stockham Fittings, which includes cast iron and malleable fittings—screwed, flanged and drainage; electric steel cast flanged fittings and flanges, made according to the new American Standard; and electric steel screwed fittings. Descriptive catalogs will be sent on request.

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Their chamfered faces and exact threads save his time and temper on the job.

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F. W. Heitmann Company—International Supply Company—E. L. Wilson Hardware

Indian Territory:		
School Land	1	....
Total Maud	2	....

Bowlegs

Amerada:		
Rasco	8	3,015
Atlantic:		
Baker	4	515
Fleet	4	460
Grayson	3	1,400
Jones, A.	3	66
Jones, C.	2	396
Barnsdall:		
McNac	1	33
Murrow	4	836
Carter:		
Bowlegs	4	1,340
Burden	3	385
Harjoche	6	865
Hilly	3	1,145
Jones	4	2,060
McGeisey	1	40
Melisse	1	540
Walker	4	685
Wise	12	4,570
Empire:		
Lacy	6	653
Wise	2	690
Gypsy:		
Bowlegs	1	....
Bradley	1	15
Cumsey	4	1,492
Dosar	1	100
Grayson	4	875
Harjoche	1	880
Henderson	1	....
Jones	1	422
Walker	8	2,275
Wise	3	280
Indian Territory:		
Barnett, A.	2	376
Barnett, B.	2	320
Billington	5	667
Bowlegs	11	1,642
Burden	1	5
Davis	4	1,574
Fay	9	2,744
Goforth	11	1,705
Livingston	11	4,151
Lizzie	2	667
Walker	8	1,120
Wilmont	4	1,017
Work	1	91
Youngblood	2	264
Magnolia:		
Davis, B. F.	1	800
Davis, M.	1	392
Hammond	2	93
Rhoades	2	5,240
Van Buskirk	1	149
McColloch:		
Bowlegs	3	380
Mid-Continent:		
Baker	4	1,860
Bowlegs	1	....
Hutke	1	1
Smith	6	880
Minnehoma:		
Bowlegs	3	112
Prairie:		
Gahagan	4	710
Harber	8	1,275
Jones	4	815
Templeton	5	2,945
Whitney	4	560
Pure:		
Reed	15	3,834
Strothers "D"	4	726
Strothers "F"	3	1,543
Roxana & Houston:		
Taylor	6	1,443
Shaffer:		
Lacy	3	554
Sinclair:		
Bowlegs	1	50
Cumsey	4	6,937
Ellen	6	1,840
Harjo	3	740
Jones	6	5,108
Taylor	4	3,380
Walker	4	820
Texas:		
Reed	10	3,110
Tidal:		
Grayson	3	1,260
Harjoche	6	2,235
Twin States:		
Jones	2	140
Total Bowlegs	307	95,306

Earlsboro

Amerada:		
Anderson	3	1,540
Cowden	8	1,885
Rodgers	3	1,805
Barnsdall:		
Brown	4	2,220
Bruner, F.	4	875
Bruner, N.	4	1,478
Cudjo, C.	1	26
Davis, D.	3	1,867
Davis, J.	4	1,121
Davis, M.	3	219
Gibson	8	2,632
Hearn	1	6
Ingram	7	4,968
Pack	4	182
Peter	4	269
Sango	3	6,846
Sebolka	1	899
Sullivan, H.	2	72
Sullivan, Harjo	3	67
Wasutke	4	1,928
Carter:		
Davis	1	245
Payne	3	130
Sango	4	3,730
Continental:		
Kays	2	370
Spencer	4	1,395
Crosbie:		
Bryant	2	....
Empire & Routt:		
Barker	1	2,065
Edmundson	3	1,252
Gypsy:		
Bruner	4	2,980
Carter	11	4,602
Earl	1	17
Hunick	1	2,115
Bora	1	....
Noble	4	1,242
Peter	6	220
Sango	4	5,667
State	4	1,330
Independent:		
Bruner	4	160
Sullivan	4	20
Knapp	5	2,897
Gaines	2	1,700
O'Dell	4	50
Inter-Ocean:		
Payne	1	....
Magnolia:		
Bryant	6	2,424
Cowden	4	78
Dixon	1	21
Edmundson	3	47
Holmsley	8	2,987
Ingram	1	30
Lena	3	87
Seay	9	4,368
Simpson	4	272
Sparks	7	2,396
Sullivan	3	148
Mid-Continent:		
McCumber	7	490
Mid-Kansas:		
Anderson	4	270
Phillips:		
Dunnaway	1	27
Graham	7	123
Prairie:		
Baker	1	50
Davis	5	1,220
Graham, C.	2	105
Graham, O.	4	2,015
Stidham	13	4,315
Roxana:		
Bayliss	1	15
Spencer	2	2,907
Shaffer:		
Clark	5	1,181
Sinclair:		
Foreman	1	15
Hollins	3	430
Sango	2	4,935
Skelly:		
Spencer	2	606
Texas:		
Anderson	6	940
Brown	8	2,640
Rodgers	4	4,970
Wilmont	6	3,450
Tidal:		
Watkins	8	2,935
Twin State:		
Barker	3	102
Hearn	3	2,659
Total Earlsboro	292	114,362

Seminole

Carter:		
B. Carter	2	210
J. Carter	3	35
F. Carter	3	105
Creamer	2	30
R. Cudjo	1	265
W. Cudjo	2	30
Gilliland	2	340
Grisso, M.	1	165
Grisso, W.	5	865
Jackson	1	10
Knapp	3	53
Killing, M.	12	8,120
Killing, G.	1	485
Lukes	7	1,555
Ponder	2	30
Simpson	3	85
Strother	4	445
Vierson	3	325
Amerada:		
Fixico	4	886
Killing	4	562
Rentle	3	668
Atlantic:		
Jones	4	1,080
Cudjo, N.	3	581
Barnsdall:		
Carter	8	2,975
Henry	2	548
Empire:		
Gross	3	112
Wilson	2	352
Gypsy:		
Butler	4	1,140
Carter	8	445
Cudjo	5	507
Fixico	7	180
Harjo	3	1,075
Wolf	6	216
Independent:		
Butler	3	1,235
P. Fixico	3	305
Harjo	3	150
Independent & Garland:		
T. Fixico	8	733
Independent & Interocean:		
Jones	4	2[illegible]
Indian Territory:		
Allen	2	576
Bowlegs	12	2,722
Fleet	1	5
Gooden	4	316
Harjo	4	104
James	4	226
Reed	3	36
Kingwood:		
Johnson	3	1,363
Magnolia:		
Born	1	62
Franks	4	832
Mid-Continent:		
Rentie	9	1,350
Tayeche	7	300
Mid-Kansas:		
Wilkins	1	....
Phillips:		
Strothers	2	63
Prairie:		
Gross	5	135
Mason	1	90
Spencer	1	12
Strother	8	1,535
Pure:		
Strother, A.	17	4,385
Strother, B.	5	2,015
Strother, C.	1	122
Roxana:		
Harber	2	300
Lashley	2	25
Sinclair:		
Carter	2	27
Cudjo, A.	6	950
Cudjo, B.	4	940
Dicey	2	1,375
Fixico	4	280
Slick:		
Cudjo	3	767
Franks	8	1,948
Giblet, Sam	3	2,209
Tiger	1	30
Superior:		
Cudjo	1	672
Texas:		
Mayhue	1	305
Strothers	2	130
Tidal:		
Carter	4	806
Fixico	6	709
Harjo, D.	3	740
Harjo, T.	6	210
Mahardy	2	174
Turman:		
Cudjo	4	1,523
Grisso	1	340
Jones	4	1,270
Total Seminole	319	58,150

Searight

Carter:		
Davis	7	1,075
Frazier	6	2,785
Johnson	1	1
Kiker	1	50
Mandler	2	30
Scott	1	30
Amerada:		
Johnson	1	70
Strother	2	1,340
Gypsy:		
Cudjo	4	580
Mid-Continent:		
Grayson	6	90
Soloche	3	2,060
Pine:		
Lulla	1	20
Prairie:		
Cannon	1	10
Carter	1	20
Houck	1	5
Kincaid	5	105
Wiemer	1	1
Superior:		
Varnum	1	40
Pure:		
Aldridge	6	2,770
Roxana:		
Strother	4	2,740
Sinclair:		
Polly	4	2,035
Texas:		
Fleet	1	10
Twin State:		
Varnum	2	40
Wilcox:		
Chupco	8	3,467
Total Earlsboro	71	19,892
Total Little River	96	35,460
Total Bowlegs	307	95,306
Total Earlsboro	292	114,362
Total Seminole	319	58,150
Total Searight	71	19,892
Total Maud	2	....
Grand total	1,087	323,060

PRODUCER SOUTH OF RUSSELL POOL ATTRACTING INTEREST IN KANSAS

By J. L. Dwyer

The new well of Stearns & Streeter, 9 miles south of the Russell Pool in Russell County, Kansas, has caused a revival of the interest which was formerly manifested in that area. The new well is producing from a formation which has definitely been identified as Oswalt lime (the producing horizon at Russell) and the output of the well has remained constant under the work of the swab.

The well is No. 1 Mermis, SW cor. NW SW, Section 33-13-15w, and the corrected sand measurement is 3,311-16 feet. It has made all of its oil by the swab, and the average was 50 bbls. hourly. The tanks upon the lease are now filled, and the well is shut down waiting for pipe line connections. It is probable that this well will be the forerunner of a pool similar in nature to the Russell Pool.

Barton County

Huffine and others' No. 1 Smith, NE cor. SE NE, Section 17-19-11w, is dry and abandoned at 5,090 feet.

Butler County

La Robb Oil Co. made location for No. 1 Sluss, SE cor. NE SW, Section 6-27-6. Dixie Oil Co.'s No. 1 Albers, SE cor. SW SE, Section 21-25-4, has been completed for 40 bbls. in sand 2,554-2,601 feet. Rosenthal and others' No. 8 Shaffer, NE cor. SE SE, Section 4-27-6, had sand 3,153-61 feet and made 250 bbls. Madison and others' No. 1 Clubine, SE cor. NW NW, Section 21-28-5, is dry and abandoned at 3,205 feet.

Cowley County

Roxana Petroleum Corp. has the rig on the ground for No. 1 Martin, NW cor. SW, Section 19-31-3. The Texas Company made location for No. 3 Hittle, NE cor. NW SE, Section 21-31-4. Roth & Faurot's machine is at the location for No. 1 Wagner, SW cor., Section 31-33-4.

Roxana Petroleum Corp.'s No. 1 Nave, SE cor., Section 20-30-3, has been abandoned at 1,858 feet. Trees Oil Co.'s No. 1 Hittle, SW cor. SE NE, Section 21-31-4, was shot with 20 quarts in sand 2,351-94 feet and made 197 bbls. Barnsdall Oil Co.'s No. 1 Patterson, SE cor. NW, Section 7-33-3, is dry and abandoned at 3,611 feet.

Elk County

Landon and others moved the rig out for No. 1 Beatty, SW cor. SE NW, Section 30-30-11. Union Gas Corp.'s No. 22 Webb, C NW NE, Section 14-31-10, was completed for 1,250,000 feet of gas in sand 1,128-33 feet.

Greenwood County

Empire Oil & Refining Co. is building the rig for No. 19 Duby, NE cor. NW NW, Section 23-22-11. Theta Oil Co. has the rig on the ground for No. 6 Fankhouser, NE cor. SE SE, Section 23-22-12. Christy and others' machine is on the ground for No. 2 Connoughey, SE cor. SW NE, Section 36-24-12. Cross and others moved a machine out for No. 3 Hoover, NW cor. NE SE, Section 36-24-12.

Eureka Oil Co.'s No. 1 Brothers, SE cor. NW, Section 35-23-11, is dry and abandoned at 1,975 feet. Golden and others' No. 1 Knox, NE cor. NW, Section 8-23-13, has been abandoned at 1,830 feet. Bisagno and others' No. 1 Steckle, NE cor. NW SE, Section 36-24-12, had sand 1,715-38 feet, total depth 1,742 feet

(Continued on Page 238)

Canadian County

Carroll Oil Corp.'s No. 1 North, NE cor., Section 18-13-10w, has been abandoned at 1,500 feet.

Carter County

Schermerhorn Oil Co. and others' rig is being built for No. 2 Crockett, SE cor. NE, Section 22-1s-3w. Magnolia Petroleum Co.'s No. 2 McCrory, SE cor. SW NE, Section 19-1s-3w, has been completed for 45 bbls. in a series of sands from 2,873 feet to 3,274 feet.

Cimarron County

Ramsey Brothers' No. 1 State Lands, SE cor., Section 4-5-6e, has been abandoned at 4,265 feet.

Creek County

Hayden and others moved a machine out for No. 1 Futrell, NE cor. SE SE, Section 1-19-9. H. U. Bartlett made location for No. 1 Thomas, NE cor. SE NE, Section 8-19-9. Sidwell Drilling Co. has the rig up for No. 1 Nave, NE cor. NW, Section 12-18-8. Regal Oil & Gas Co.'s No. 9 Lee, SE cor., Section 13-18-11, an old well, is being cleaned out preparatory to deepening. Kennedy & Horner's No. 1, Lot 14, Sapulpa Townsite, NW cor. NE NE, Section 26-18-11, is a machine rigging up. Westland Oil Co. has a machine on the location for No. 1 Unallotted, NE cor. SE, Section 24-17-9. Chief Drilling Co. and others' rig is built for No. 1 Hakins, SW cor. NE, Section 16-17-10. Young & Whittington and others' No. 1-A Koconaney, NW cor. SE SE, Section 23-17-10, is spudding. C. W. West and others' rig is up for No. 1 Ralston, SW cor. NW, Section 16-16-10. Lima Oil & Gas Co. has the rig on the ground for No. 1 Henehochee, NE cor. SE SE, Section 35-15-7.

Sinclair Oil & Gas Co.'s No. 9 Wacoche, SE cor. NE SW, Section 20-18-7, had a hole full of water in sand 2,662-67 feet and has been abandoned at 2,808 feet. Miller and others' No. 1 Strip, SW cor. NW SW, Section 24-18-11, made a 25-bbl. well in the Taneha sand 1,777-81 feet. W. S. Turman's No. 4 Pemberton, C NW NW, Section 8-17-10, was shot with 135 quarts in Wilcox sand 3,038-74 feet and made 92 bbls. Bu-Vi-Bar Petroleum Co.'s No. 2 Strip, NW cor. SE NE, Section 36-15-7, has been completed for 21,000,000 feet of gas in sand 3,244-46 feet.

Garfield County

Sinclair Oil & Gas Co.'s No. 18 Metcher, NE cor. NW SE NE, Section 36-22-4w, is producing 10 bbls. from sand 1,963-75 feet.

Grady County

Hall & Briscoe's No. 1 Dryden, C NE SW, Section 2-4-8w, is rigging up rotary tools to deepen. Commerce Development

(Continued on Page 238)

Hot Oil Pump PERFECTION

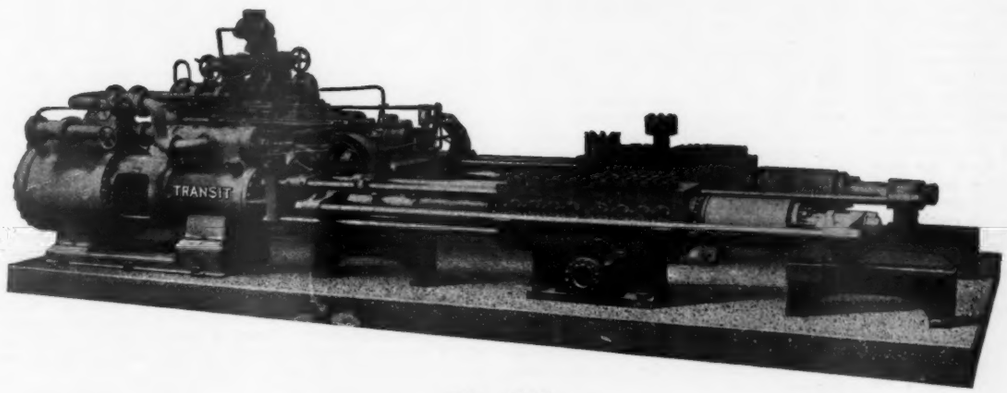

Fig. 1805.

18 & 30x6x24" Horizontal Twin Single, Outside End Packed Hot Oil Pump with automatic synchronizer.

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Pine Island Trinity Group Extended

Dixie Oil Co. Has Test Standing 1,000 Feet of Oil in Hole Half Mile North of Production. Few Completions

By D. H. Bancroft
Staff Correspondent, North Louisiana-Arkansas

SHREVEPORT, La., Feb. 6.—Production in the 3,900-foot horizon of the Trinity group in Pine Island is extended a half mile north by the Dixie Oil Co.'s No. 4 H. H. Huckaby in Section 11-21-15, which, with the bottom at 3,890 feet is standing with 1,000 feet of pipe line oil in the hole and is waiting for standard rig to pump. The showing is particularly interesting in that prior completions in this direction from the original wells were failures in both the 3,600-foot horizon and at deeper levels, leading to the belief that the pool had been defined on that side; also because its failure to flow reveals to what extent the once heavy gas pressure has been depleted by allowing wells making both gas and oil to blow. This depletion has reached the point where it has become necessary for The Texas Company to install two low pressure compressor units in order to utilize low pressure gas in its gasoline plant operated in connection with gas lift installation.

Dixie Oil Co. and Pittsburgh Oil & Development Co. have two deep wells going in Pine Island, the former's No. 90 Dillon, Section 14-21-15, coring at 4,000 feet and the latter's No. 1 Herndon in Section 15-21-15, coring at 4,008 feet.

One of the largest lease trades of record recently was made during the week by Gulf Refining Co. and R. O. Roy, the former taking 990 acres for $12,375 and the usual one-eighth. The acreage is located in Sections 35 and 36-19-15 and 1 and 2-18-15, about a mile east and north of Blanchard and 12 miles north of Shreveport. The Gulf was quite active last summer in leasing in this locality but to date has not started any drilling and its plans in this respect are not known.

Few Completions

Completions in proven areas of the Shreveport territory were few and far between, there being only five, of which three were producers with 685 bbls. initial, one a failure and one a gas well which later cratered. J. S. McCullough put No. 5 Hodges, Section 25-16-12, Elm Grove district in Bossier Parish, on the beam for 30 bbls. from 1,548 feet. C. E. Jordan abandoned No. 1 Southern Carbon Co., Section 14-20-4, Morehouse Parish, after drilling only 350 feet. Natural Gas & Fuel Co.'s No. 1-A Thompson in Section 21-16-6, Richland Parish, was completed at 2,477 feet gauging 65,380,000 feet of gas, later starting leaking outside the casing and finally cratering.

Two Champagnolle wells that have been standing in fluid were put on the pump and added 655 bbls. new production. E. M. Jones' No. 2 Crain, Section 2-17-14, that has been standing 2,000 feet in fluid, 50 per cent water from 2 feet of sand at 3,010-12 feet was put on the air and is blowing 2,500 bbls. of fluid 25 per cent oil. Ohio Oil Co.'s No. 6 Crain, offsetting on the east No. 1 R. Pumphrey, a 25,000,000-foot gas well at 3,031 feet is pumping 30 bbls. of oil from 3 feet of sand at 3,028-31 feet.

Magna Production Co.'s No. 1 Rowland in the NW cor., Section 14-17-14, appears to have missed the sand from which Garrett-Modiettt's (C. Murdock) No. 1 Gregory on the west is producing and is drilling gummy shale at 2,783 feet after coring a water sand at 2,758-65 feet.

Production Down Again

Daily average runs from the several pools in the district, which halted their steady decline of the last six or eight months for three weeks during which they showed a total increase of 1,060 bbls, turned down again this week and showed a decline of 260 bbls. from last week's total of 135,810 bbls. Shipments for the week ending February 4 totaled 135,550 bbls. The loss was all in Louisiana as Arkansas shows a small increase of 40 bbls. Louisiana runs were 45,390 bbls. and Arkansas 90,160 compared to 45,695 bbls. and 90,115 bbls., respectively, last week.

Caddo light runs went down 225 bbls. Homer 10, Urania 100 and Pleasant Hill 155 bbls. Caddo heavy shipments averaged 20 bbls. per day more than last week, Haynesville 15, DeSoto-Red River 95 and Cotton Valley 60. Elm Grove was stationary with a 5-bbl. increase and Bellevue was unchanged at 1,000 bbls. per day.

In Arkansas, Smackover light oil runs declined 120 bbls. and the heavy oil movement was 50 bbls. per day more. El Dorado fell off 30 bbls., Stephens 20, Nevada County 315 bbls., and Lisbon 30. Due to Eddy Jones' No. 2 Crain in Section 2-17-14, Champagnolle runs jumped 510 bbls. to 1,210 bbls., the biggest figure they have reached since the field appeared in daily average runs figures.

Daily average runs from the field for the several pools during the week were the following:

Louisiana	
Caddo light	11,545
Caddo heavy	3,990
Homer	4,415
Haynesville	6,315
DeSoto-Red River	4,275
Elm Grove	575
Bellevue	1,000
Cotton Valley	4,460
Urania	8,180
Pleasant Hill	635
Total	45,390
Arkansas	
El Dorado	5,120
Smackover light	8,655
Smackover heavy	69,165
Stephens	1,100
Nevada County	2,400
Lisbon	2,410
Bradley	100
Champagnolle	1,210
Total	90,160
Both states	135,550

NORTH LOUISIANA

Bossier Parish

Bellevue—Humble Oil & Refining Co. has passed out of the hard sand in which it was drilling for over 123 feet in No. 1 Bliss & Wetherbee, Section 15-19-11, and is drilling sandy shale and lime at 5,000 feet.

Cartersville—Atlantic Oil Producing Co. is in shale at 780 feet on No. 1 Bain, Section 31-23-12. Bahan & Davis' No. 1 Holmes, Section 36-23-12, is drilling at 2,820 feet. Natural Gas Products Co., a recently organized local firm, has derrick up for No. 1 Floyd in the C N half SW, Section 25-23-12. Northwest Louisiana Gas Co. has cemented 6-inch pipe at 3,050 feet in No. 1 Bain, Section 31-23-12. Palmer Corp.'s No. 1 G. W. Roberson, Section 26-23-12, is shut down at 1,731 feet for repairs to the rig. Sales and Walker cemented 8-inch casing at 806 feet on No. 1 Kilgore, Section 31-23-11, which is evidently to be a deep test as second string in standard depth Cartersville wel's is usually 6-inch of 6⅝. The Texas Company is drilling lime at 2,779 feet in No. 1 Peyton, Section 30-23-11, and No. 2 Wilkerson, Section 36-23-1a, is drilling at 2,132 feet. Woodley & Collins' No. 1 Bain, Section 31-23-12, began drilling January 30 and set 12-inch surface string at 380 feet; No. 1 Bollinger, Section 36-23-12, set 12-inch at 365 feet and is drilling at 1,087 feet.

Elm Grove and Sligo—C. F. Davis set 6-inch at 1,836 feet on No. 5 Simpson, Section 14-16-12, instead of at 1,680 feet as previously reported, and is drilling at 1,900 feet. Ellis & Markley are in the gas rock at 862 feet on No. 5 Hunter, Section 14-16-12. H. S. Goodwin's No. 1 Mercer, Section 21-16-12, claims to have an oil show at 1,582 feet and is setting 4½-inch casing with packer for a test. J. S. McCullough has rig up to drill No. 6 Hodges, Section 25-16-12.

Caddo Parish

Greenwood—Belchic & Laskey's No. 4 R. T. Sharp, Section 10-18-16, is drilling at 900 feet. Magnolia Petroleum Co. is drilling lime at 2,420 feet in No. 1 Furrh, Section 28-18-16.

Pine Island—Dixie Oil Co. is deepening No. 81 Dillon, Section 13-21-15, completed last May 12 as a 35,000,000-foot gasser at 3,647 feet, and is drilling at 3,775 feet; No. 91 Dillon, Section 14-21-15, is coring at 4,000 feet. No. 92 Dillon in Section 13-21-15, is drilling lime at 3,800 feet; No. 4 H. H. Huckaby, Section 11-21-15, is waiting on standard rig to pump with 1,000 feet of fluid in the hole, total depth 3,690 feet.

Magnolia Petroleum Co. tested salt water at 3,778 feet in No. 8-A Hampton, Section 15-21-15, and is coring shale at 3,782 feet; No. 22 Robertshaw, Section 23-21-15, is reaming to bottom at 3,727 feet. Pittsburgh Oil & Development Co.'s No. 1 Herndon, Section 15-21-15, is coring at 4,008 feet. Simplex Oil Co. has begun drilling No. 2 Baird, Section 22-20-15. The Texas Company's No. 8 A. Herndon, Section 14-21-15, is flowing 400 bbls. salt water with about 50 bbls. oil from 3,705 feet and is waiting orders; No. 9 A. Herndon is in shale at 3,793 feet.

Oil City—Standard Oil Co. is rigging up to drill No. 12 A. L. Berry in Section 11-20-16; No. 18 J. J. Hart, Section 34-21-16, is in 13 feet of sand at 1,836 feet and is waiting on standard rig to pump.

Monroe District

Morehouse Parish—Consolidated Carbon Co.'s No. 1 Perry, Section 14-20-4, is drilling at 2,145 feet. Elbert Petroleum has location for No. 1 Morehouse Planting Co., 700 feet north and 650 feet east SW cor., Section 40-19-7. Moody & Seagraves' No. 1 Wolf, Section 13-20-4, is drilling at 2,150 feet. No. 1 Myers, of The Texas Company, in Section 15-22-7, is drilling at 2,050 feet.

Ouachita Parish—Coco Bend Oil & Gas Co. is drilling No. 1 Cordell, Section 23-15-3, at 1,900 feet. J. M. Humer has cemented 6-inch casing at 2,200 feet in No. 4 Edwards, Section 1-18-4. Imperial Oil & Gas Products Co.'s No. 4 Stubbs, Section 13-19-3, has 6-inch pipe cemented

(Continued on Page 233)

BIG GASSER IN RICHLAND PARISH BREAKS LOOSE AND FORMS CRATER

By D. H. Bancroft

SHREVEPORT, La., Feb. 6.—Wildcat territory furnished all the news in the Shreveport district this week, the chief development being a wild well in Richland Parish when Natural Gas & Fuel Corp's No. 1-A Thompson in Section 21-16-6 broke loose after being completed and closed in as a 65,380,000-foot gasser. It was completed at 2,477 feet last Monday and shut in until Thursday when it was gauged and again closed. Friday morning gas began breaking out around the first and second strings and by dark the well was a crater into which what was left of the derrick had collapsed. In falling it broke off the christmas tree and the well is blowing through as well as around the casing. It is believed the blowout is due to a split casing about 800 feet down and arrangements are under way for drilling a relief well as close as possible to the crater to reduce pressure sufficiently to permit pumping barytes into the wild well to kill it before it can pull in salt water and flood the sand. Killing it by pumping mud into the sand through the relief well, as was done in killing the famous crater well at Oil City several years ago and in numerous other wild wells in this territory since is said to be impracticable because the Richland sand is too compact. The well, the fourth of its size, is in about the center of the proven area and is the first in the field to get away.

Moody-Seagraves' No. 1 Osborn in Section 14-15-5 appears to have further defined the southern extremity of the Richland Field. It was abandoned during the week as a dry hole in volcanic rock at 2,501 feet, rock so hard that it wore out three sets of cones in making less than a foot of hole and raised drilling costs to an estimated $25 per inch of hole. Various other Richland wells have penetrated this volcanic rock but in them it was neither so hard nor so thick. This well got it at around 2,480 feet after bailing dry at 2,458-74 feet. Location is the extreme southern end of territory so far explored in Richland.

Palmer Corp. is plugging back to 2,475 feet in No. 2 Wayne Land & Timber Co. in Section 23-16-5, which was turned over to it by Gulf Refining Co. following a show of about 250,000 feet of gas at 2,453 feet and deepened to 2,525 feet without developing any further showings. Location is on the west edge of active territory and about midway the field north and south.

Franklin Parish Showing

Franklin Parish may be the location of the next excitement following a show of gas at 2,503 feet in Louisiana Petroleum Co.'s No. 1 Tensas in Section 11-11-6, about 30 miles due south of the Richland proven area. The wildcat has been shut down at 2,503 feet since December 14 and the show developed while it was being cleaned out. There is only 200 feet of 10-inch surface casing in the hole and the next move will probably be to set 8-inch for a test.

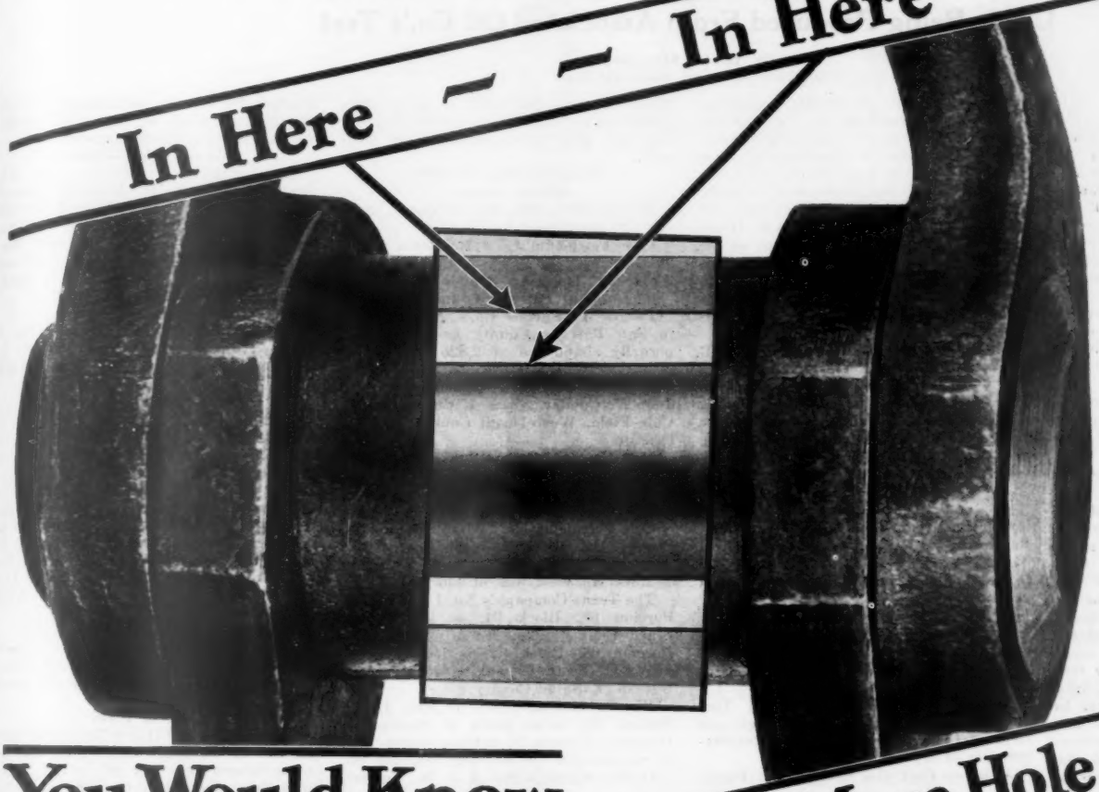
Lake Bisteneau Gas Co. completed a wildcat gas well in Bienville Parish making 1,500,000 feet, total depth 2,531 feet, in 3 feet of sand. No. 1 State in Section 16-16-10, 9 miles east of Elm Grove gas field in southern Bossier Parish and in the same small territory where Lakeside Oil & Gas Co. completed two or three big gassers in 1921-22 which subsequently went to water.

Arkansas Natural Gas Co.'s Caddo Parish wildcat, No. 1 Alexander, in Section 20-16-15, was not so successful. It is dry and abandoned at 3,075 feet. Location is 7 miles east of the old Bethany gas field and about 15 miles southwest of Shreveport.

Magnolia Petroleum Co. also abandoned its test for Trinity production

(Continued on Page 234)

If You Could See



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Carolina-Texas Pool Well Making Oil

Production of 60 Bbls. Daily of Light Green 42 Gravity Crude Being Produced From Associated Oil Co.'s Test

By B. D. Stevenson
Staff Correspondent, Southwest Texas

SAN ANTONIO, Tex., Feb. 6.—Associated Oil Co.'s No. 1-B Webster in the Carolina-Texas Field completed about a year ago at 3,028 feet and good for around 50,000,000 feet of gas was opened a week ago and made some oil and a smaller volume of gas. It was closed in for a day until a tank could be rigged up, and when opened it filled the 60-bbl. tank in 15 hours and was shut in again. Last week, Thursday at 5 p.m., it was connected to two 1,000-bbl. tanks and opened again and seemed to be making at the rate of about 60 bbls. of oil a day and 10,000,000 feet of gas with the well pinched in. The oil is about 42 gravity and light green in color.

It was more than a year ago that the Associated and Usher Carson brought in their No. D-2-A Webster in the same field making a little oil at 2,609 feet. It was circled with offsets without success and No. D-2-A is now not producing. It is nearly in the center of the north half of Survey 684. The Associated's No. 1-B is three-eighths of a mile west. Several gas wells at around 3,000 feet in the Carolina-Texas Field have been supplying considerable volume of gas to pipe lines but the Associated well has been shut in. One of the explanations of the No. 1-B making oil is that the gas pressure has been lowered allowing the oil to get in. The well has not been tested long enough to determine this. The oil may be an accumulation of oil that has taken place while the well was shut in. At the least calculation it is fuel for the argument that the Carolina-Texas gas field will some day be an oil field.

Cole Petroleum Co.'s No. 51 Benavides in Survey 412 of Webb County, was completed the past week at 2,324 feet with a rock pressure of 750 pounds and 10,000,000 feet of gas and carrying some oil. This is in the spot about 4 miles west of the Co'e gas field in Duval and about 7 miles southeast of the Carolina-Texas gas field in Webb County. More than a year ago Cole drilled and got considerable gas at about the depth of No. 51 and then carried the discovery well of this new field on deeper. Some oil was had in other wells drilled in that area. Houston Oil Co., which completed No. 1 Juan V. Cuellar, 3 miles south of Cole, is now rigging up on No. 2 Cuellar. No. 1 made a big gasser at approximately the same depth as the Cole well.

Big Merger Rumored

Additional interest in the Mirando country is taken in the announcement that certain properties in the Mirando district will be merged into a company of considerable size through efforts of C. O. Maddox. Mr. Maddox has been an operator in the field for some years and also represented Simms Oil Co. The merger will be of some 300,000 acres of gas land with wells having a combined open flow of 700,000,000 feet of gas. Information is lacking on some of the details. It is understood the merger will involve property of a value of about $15,000,000. It is reported but not confirmed that the developed gas of Kitselman & St. Albans will be in the deal along with the Border Gas Co. and possibly the Rio Grande Valley gas line, though this has not been confirmed. It is understood that an outlet and market for the gas has been provided though it is not ready to be announced. The Mirando territory is already supplying an enormous amount of gas. In addition to the Border Gas Co. supplying Laredo, Southern Gas Co. is supplying the Rio Grande Valley Gas Co.'s line to the lower Rio Grande Valley cities and bringing some to San Antonio and supplying some to lines running to Houston. Also Houston Oil Co. has a double line out of the territory to Houston. Another big gas company with a big market will tend to keep drilling activity in that territory from dropping below what it is at this time.

Outside of the Associated's No. 1-B in Webb County, and the Saxet Oil Co.'s No. 7 Rachal at White Point in San Patricio County which has been burning for three weeks and is still burning, the proven fields of Southwest Texas the past week added almost nothing of interest.

COMPLETIONS

Webb County

Cole Petroleum Co.'s No. 51 Benavides, Survey 412, Block 5, new Cole gas field No. 2, at 2,331 feet gauged 10,000,000 feet and is spraying oil, 750 pounds rock pressure.

Medina County

Chacon Oil Co.'s No. 1 Jungman, Survey 31, J. Degent, at 940 feet has been pumping 4 bbls. daily for several days.

Refugio County

Houston Gulf Gas Co.'s No. 1 Tom O'Connor, 5 miles from the Refugio gas field at 1,920 feet completed for 50,000,000 feet of dry gas.

Houston Gulf Gas Co.'s No. 6 Fanny Heard, Refugio gas field, deepened from 2,405 feet to 3,290 feet gauged 40,000,000 feet with 1,150 pounds rock pressure.

ABANDONED TESTS

Duval County

Milo E. Trussell's No. 1 Moody, Survey 60, abandoned dry at 2,560 feet.

Cole Petroleum Co.'s No. 50-B Benavides, Survey 5, Block 7, Cole Field at 3,451 feet has been abandoned dry.

San Patricio County

Pargee Petroleum Co.'s No. 1 Beall in San Patricio County has been temporarily abandoned at 2,825 feet dry.

New Locations

Houston Oil Co.'s (Humble) No. 2 Juan V. Cuellar, Share 1, Cuellar grant, Cole Field, Webb-Duval County has derrick up.

Houston Oil Co.'s (Sun) No. "B"-4 Benavides, Survey 12, Block 13, Cole Field, Duval County is location 660 feet to north and east lines.

Cole Petroleum Co.'s No. 52 Benavides, Survey 412, Block 5, Webb County has derrick up 123 feet to north line and 482 feet to west line of block.

The Texas Company's No. 1 M. Guerra, Porcion 68, Block 91, is location in Starr County; No. 1 "A" V. Guerra, Porcion 68, Block 92, is location.

W. C. Scott is making location for test in LaSalle County.

W. G. Malong's No. 1 Mrs. D. G. Staton, 3½ miles south of Slayden in Gonzales County is drilling water well in preparation to starting test for oil.

O. W. Killam's No. 1 J. W. Calvert, Fulcher Survey, in Guadalupe County, 150 feet to CNL of farm has derrick up and the rig on the ground.

Cole Gas Field—Duval

Houston Oil Co. (Roxana) No. 3-A Benavides, Survey 11, Block 41, located 319 feet to northeast lines and 150 feet to northwest lines, is drilling at 1,250 feet. Cole Petroleum Co.'s No. 50-B Benavides, Survey 5, Block 7, located 611 feet to northwest lines and 625 feet to northeast lines, has shale at 3,314 feet.

Humble-Reiter-Foster

Humble Oil & Refining Co.'s No. 7 Kohler, Survey 165, located 200 feet to north and west lines, is drilling at 1,014 feet.

Piedras Pintas Dome

Humble Oil & Refining Co.'s No. 7 Walsh, Survey 185, located 2,050 feet to east line and 1,750 feet to north line, is drilling at 4,495 feet.

Randado Field—Jim Hogg

Johnson and others' No. 24 Palacious, Survey 291, Block 14, located 150 feet to east line and 726 feet to north line, is location. Magnolia Petroleum Co.'s No. 34 Merchants State Bank, Survey 415, located 1,900 feet to west line and 2,150 feet to north line, has derrick up.

Henne, Winch & Fariss Pool

Edwards St. Albans' No. 9 Lopez, Share 1, Block 6, located 291 feet to east line and 180 feet to south line, is standing at 2,144 feet.

Alworth Field

Alworth-Stevens-Hild's No. 11 M. Garza, Survey 39, Block 10, located 310 feet to northwest lines and 460 feet to southwest lines, and 600 feet southwest of No. 10, is moving on.

Reiser Field—Webb

Ritchison and others' No. 1 Wheatley, Survey 1,570, Block 2, is location.

Leaseholders Pool

J. H. Winch's No. 1 A. E. Gates, Survey 70, located 1,470 feet to south line and 1,170 feet to west line, is drilling at 1,200 feet.

Aviator or Bruni Tracts

Livingston and others' No. 1 Puig, Block 5, Edgington Subdivision, 150 feet to north and west lines, is moving on.

Carolina-Texas Field

Houston Oil Co.'s No. 3 S. Benavides, Survey 683, located 350 feet to north line and 1,470 feet to east line, is ready to start drilling and is waiting on orders. Serna-Forrest's No. 1 Benavides, Survey 2,272, Block 2, located 150 feet to north line and 200 feet to east line, at 2,020 feet has set casing to test gas showing at 2,025-30 feet.

Dale Field—Caldwell

The Texas Company's No. 1 Jeff Moore, J. Gilbert Survey, located 270 varas to northeast lines and 335 varas to northwest line, is rigging up; No. 6 Lackey, J. Gilbert Survey, 150 feet to northeast and northwest lines, is rigging up.

Luling Field

Magnolia Petroleum Co.'s No. 16 O. F. Stair, John Henry Survey, 300 feet southwest of No. 14, is drilling at 2,107 feet; No. 11 W. J. Tiller, John Henry Survey, 300 feet southwest of No. 5, is drilling at 1,642 feet. Pat M. Armstrong's No. 1 Hardeman, Miles G. Dykes Survey, 150 feet to northwest and southwest lines of farm, is drilling at 1,500 feet. North & South's No. 1 Kelly is down 7,457 feet; No. 2 Tiller is drilling at 6,974 feet. M. W. Koenig's No. 5 Tiller, John Henry Survey, is a location 260 feet north of No. 4.

Kingsville Field—Kleberg

Humble Oil & Refining Co.'s No. B-3 Dennet, Lot 19, Section 38, located 150 feet to CWL, is erecting derrick; No. 5 Kleberg, Lot 8, Section 40, located 150

(Continued on Page 234)

NEW GAS AREA IN REFUGIO COUNTY OPENED BY HOUSTON GULF GAS WELL

By B. D. Stevenson

SAN ANTONIO, Tex., Feb. 6.—Houston Gulf Gas Co.'s No. 1 Tom O'Connor in Refugio County several miles east of the Refugio gas field is a big gas well and opens up a new gas area for the company at a depth of 2,300 feet and with a volume estimated at around 50,000,000 feet. The Houston Gulf Gas Company owns 113,000 acres in the O'Connor lease and this well is so far from the nearest line that the entire structure may be on the Houston Gulf Gas Co. lease. The well is completed and in good shape. When it first came in and the valves were closed it was discovered there was a leak in the valve and the well had to be mudded off till that was repaired. It is now all completed in good shape.

The country down that way is mostly big tracts of land that are not subdivided and it is therefore difficult to locate the well exactly with reference to the O'Connor lease but the well is 17,000 feet east and 7,000 feet north of the public square in Refugio. The Refugio gas field of irregular shape is a mile or two west and north of the town of Refugio and the new well is approximately due east of the most northerly well of the Refugio Field and over 5 miles from the nearest well in that field.

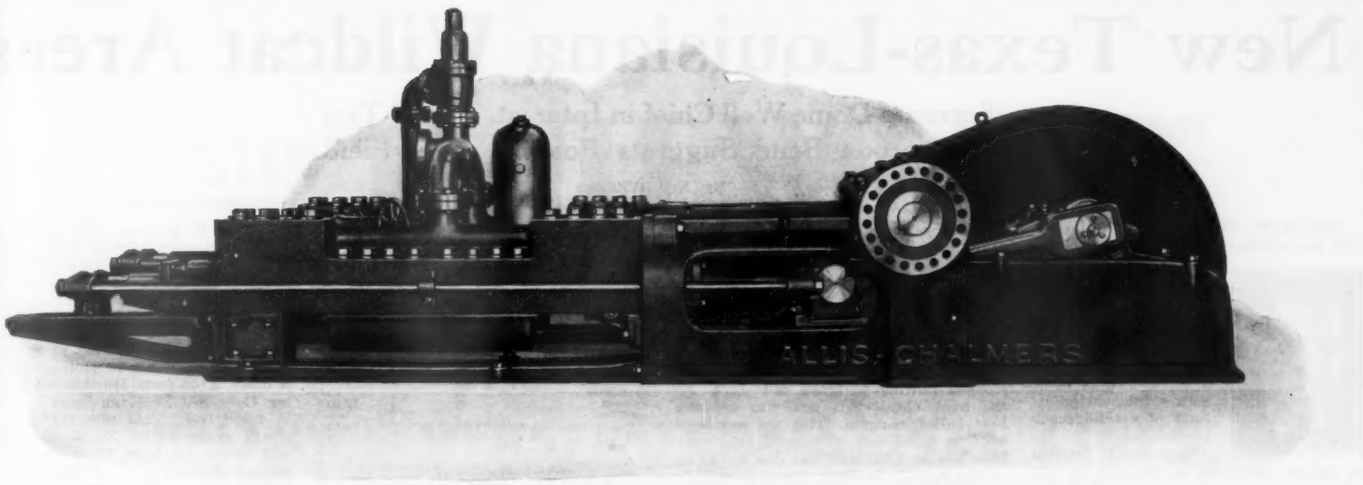
Duval County Wildcat

Among other wildcat features of Southwest Texas the past week is the Humble's No. 7 Walsh on the Piedras Pintas salt dome in Duval County. At 4,502 feet it is in a new sand and with quite a good showing of oil. Humble is the only persistent wildcatter on that dome. When Humble found some oil in No. 4 Walsh a couple of years or more ago other wildcatters rushed in to help develop the field but when it didn't develop they quit. A number of times Humble has had good shows in the past in this and other wells. The dome, known to be a salt dome, thus far has not paid off. No. 7 is now standing and will probably be tested soon.

In Duval County where Robert Driscoll, a ranchman and capitalist, brought in a big gas well some weeks ago at a little below 2,400 feet, his well a few hundred feet to the east of the discovery well and known as the No. 9 fee was a salt water well at the gas sand depth of the discovery well and No. 9 is now down to 2,600 feet. Driscoll has refused offers for the lease on his land both before and since the No. 9 was salt water and it is understood his intention is to drill the No. 9 "deep." No specified depth is given but it may go to 4,000 feet or more. His No. 10-A on the west side of the discovery well and several hundred feet away late last week was down 1,975 feet. His ranch is half way between the Piedras Pintas Field on the northeast and the Cole gas fie'd on the southwest.

Late last week War. Wood Hunt's No. 1 McNeil, located in the Jane Curry Survey in Live Oak County a little to the northwest of the Houston Gulf Gas Co.'s gas field on the Cartwright ranch, was setting casing at 2,000 feet in anticipation of encountering gas and to prevent any catastrophe. Drilling was to resume today. When overproduction ceases and wildcatters are encouraged there will doubtless be a lot of prospecting around through Live Oak County and especially north of the Cartwright gas field in an effort to duplicate it. Plateau found a gas field 10 miles south of the Cartwright but a cratered well held back the development of the

(Continued on Page 237)



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New Texas-Louisiana Wildcat Areas

Sorrento Dome Well Chief in Interest. Third Test at Raccoon Bend Suggests Possible New Field

By Nell Williams
Staff Correspondent, Gulf Coast Fields

HOUSTON, Tex., Feb. 6.—That there still are additional oil and gas fields to be developed in the Texas and Louisiana coastal territory was indicated the past week when oil was tapped in two virgin wildcat districts while a third wildcat dome gave further indications of extensive gas production.

The chief interest of coastal operators is centered on the Sorrento Dome, 30 miles southeast of Baton Rouge in Ascension Parish, Louisiana, where a wildcat drilled by the Gulf Refining Co. of Louisiana started flowing at the rate of between 3,000 and 4,000 bbls. of 26 gravity oil daily. This oil was the first produced in southern Louisiana east of the Mississippi River.

Another possible new field opened during the week was at Raccoon Bend, Austin County, Texas, where the Humble Oil & Refining Co. brought in a well flowing between 350 and 500 bbls. daily. The latter is the third test to find oil at Raccoon Bend but the production in the first two was so small and of such comparatively short duration that the new well might be considered the first real producer.

Allen Dome of Brazoria County, a few miles from the Gulf of Mexico, a wildcat dome being prospected by the Roxana Petroleum Corp., figured again in gas developments when a test there blew out while drilling and with such pressure as to cave the hole. During the previous week another test there blew in making an estimated 50,000,000 feet of gas with a pressure of approximately 500 pounds.

Sorrento Wildcat

The Sorrento Dome wildcat, Gulf Refining Co.'s No. 4 United Land Co., Section 15-10s-4e, at present is shut in and has been ever since it made its initial flow last Monday afternoon except for a short time Thursday. Thursday's indications, according to Gulf officials, were that the well would not be near as prolific as first thought and possibly might not turn out anything other than a gasser.

When opened Thursday the well was reported to have made "lots" of gas with a spray of oil estimated at from 200 to 300 bbls. daily. The Gulf, however, is building four 1,000-bbl. storage tanks and is installing two gas separators and a 1,500-bbl. gun barrel.

The well originally was brought in making an estimated 10,000,000 to 15,000,000 feet of gas, reported as dry, but was shut in for gauging. When opened last Monday afternoon for a gauge it started flowing oil estimated at between 3,000 and 4,000 bbls. This production, as has previously been reported, is from a total depth of only 1,660 feet in sand just under 43 feet of cap rock.

Raccoon Bend Producer

The Raccoon Bend wildcat was Humble Oil & Refining Co.'s No. 2 Gotosky, which found the 500-bbl. production from sand at 3,274-82 feet. The well came in flowing by heads. There has been no production at Raccoon Bend for several months since Humble's No. 2 Thompson, the discovery well, went dead several months ago. That well never was considered much of a producer. It was brought in last April pumping 33 bbls. daily from sand at 1,007 feet but production did not hold up even to that figure. The first well, No. 1 Walton, drilled previously, had been completed as a gasser at 1,100 feet.

The new well is the third deep test drilled, being on what is believed to be the northwest flank of the dome. The existence of a dome never has been definitely established. Approximately 15 shallow tests have been drilled and one other deep test is under way.

Allen Dome Possibilities

The Allen Dome possibilities being prospected by Roxana, still are uncertain. The well which blew in a week ago making an estimated 50,000,000 feet of gas stopped flowing within a few days. As the week closed this test was to have been bailed in again. This gas was from sand at 4,913 feet. The well this week blew out at 4,931 feet but due to caving of the hole it is likely the hole will be lost.

Roxana has been working for longer than a month trying to make a flowing oil well out of another test but now will put the well on the pump, although production is at a depth of 5,337 feet. This well would flow by heads when bailed, making about 25 bbls. every time bailed.

Gulf Production Co. finally has completed its deep sand well (No. 1 Perry) at Pierce Junction, Harris County, the well coming in with an initial flow of 500 bbls. daily of pipe line oil. The production dropped off to 246 bbls. daily quickly and as the week closed it was making only around 220 bbls. The well is from a sand at a total depth of 5,429 feet, an entirely new deep sand for this field.

The Jennings (Evangeline) Field of Acadia Parish, Louisiana, was defined on one part of the south edge during the week when The Texas Company abandoned its No. 2 Rayne heirs, Section 40-9s-2w. This edge test was abandoned after drilling to 4,610 feet.

Included in producers completed during the week were two at Pierce Junction, two at Spindletop, one at Batson, one at Saratoga, one at Hull, one at Orange, one at High Island, one at Raccoon Bend, and two at Blue Ridge. Six scattering tests were abandoned.

Production Drop

Daily average production of Gulf Coast fields suffered another sharp drop during the week ending February 4 with the total daily average output at 117,561 bbls. This was due chiefly to a sharp decline at Spindletop where one good well of the Sun Oil Co. went dead and another started making lots of water and sediment.

Production of other fields in the district, except Hackberry which reflected a steady decline, was virtually steady as was the output of pools in southwest Texas and Central Texas. Daily average production by districts and pools for the week was:

Spindletop	39,367
Saratoga	1,052
Batson	1,306
Goose Creek	7,636
Sour Lake	3,488
Hull	11,731
Big Creek	2,113
Columbia	8,645
Humble	3,185
Pierce Junction	7,869
Blue Ridge	5,247
Markham	200
Orange	4,441
Damon Mound	800
South Dayton	178
South Liberty	1,945
High Island	43
Moores Field	394
Boling	1,982
Nash Dome	1,270
Barbers Hill	650
Vinton	4,423
Starks	238
Edgerly	1,663
Evangeline	1,030
Lockport	5,190
Sweet Lake	....
Sulphur	203
Hackberry	1,222
Total this week	117,561
Total last week	120,794
Decrease	3,233

Southwest Texas

Somerset	2,182
Lytton Springs	1,525
Dale	692
Luling	14,290
Miscellaneous	7,925
Total this week	26,614
Total last week	26,613
Decrease	1

Central Texas

Mexia	8,010
Cedar Creek	905
Nigger Creek	1,080
Currie	548
Wortham	2,140
Richland	598
Powell	12,577
Total this week	25,858
Total last week	25,864
Decrease	6

Blue Ridge—Fort Bend County

Blue Ridge's two completions of the week were H. R. Cullen's No. 1 Blakely and Gordon, Folwell & Dickson's No. 3 Blakely. The former originally was completed January 7 flowing 2,000 bbls. of 27 gravity pipe line oil daily, the largest well ever brought in at Blue Ridge, but it sanded up after a few days and has been worked over. The past week it was brought back in flowing 900 bbls. of fluid, of which 40 per cent was sediment and water. Gordon, Folwell & Dickson's well came in flowing 200 bbls. daily from sand at 2,870 feet.

Another Blue Ridge well also was to have been tested as the week closed, this being H. B. Gordon's No. 2 Blakely which had strainer set around 3,075 feet. Gulf Production Co.'s No. 11 West Schenck is drilling deeper after bailing salt water at 4,436 feet. Sam Watt and associates also have set casing around 3,025 feet in their No. 3 Blakely and probably will test a sand below that depth.

Blakely & Means' No. 1 Blakely is drilling around 2,175 feet. H. R. Cullen's No. 1 Lafferty is down 300 feet and his No. 1 Davidson approximately 1,700 feet. This operator also has a rig up for No. 1 Luscher. Cunningham Production Co.'s No. 4 Blakely is drilling at 3,025 feet and Gordon & Sharp's No. 2 Blakely at 1,800 feet. Gulf Production Co.'s No. 11 Luscher is drilling at 1,950 feet. Navarro Oil Co.'s No. 1-A Robinson failed to make a well at 3,651 feet and now is milling out preparatory to drilling deeper.

Pierce Junction—Harris County

Gulf Production Co. has completed its No. 1 Perry, opening production in an entirely new deep sand at Pierce Junction. The well came in with an initial flow of 500 bbls. daily of 29.1 gravity pipe line oil although the latter part of the week the flow had dropped off to around 220 bbls. The sand is at a total depth of 5,429 feet. This well was bailed several weeks ago but failed to make a satisfactory producer so was worked on and deepened slightly.

Rio Bravo Oil Co. also worked over one of its old wells, No. 1 Settegast and brought it back in flowing 250 bbls. from sand at 4,175 feet. Hou-Tex Oil Co.'s No. 1 Trapier, however, hit the salt and was abandoned at 3,184 feet. This test had a showing of oil at 2,740 feet.

Anderson & Plummer have set casing at 4,340 feet in their No. 2 Whitehead. Cullen and associates are drilling deeper in their No. 4 Howe and are down 4,825 feet after making a test slightly about that depth. These operators also have a derrick up for No. 5 Howe. Gulf Production Co.'s No. 23 Taylor is drilling around 4,680 feet. Drilling also was started at No. 24 Taylor during the week and Saturday this test was down 1,185 feet. Leonard and associates' No. 1 Settegast is drilling below 3,750 feet. Moody Corp.'s No. 3 Humer is down 4,250 feet, its No. 2 Whitehead 3,300 feet, and its No. 1 Cooper 3,800 feet. Navarro Oil Co. is drilling deeper in No. 2-B Cain after a test around 4,850 feet. Rio Bravo Oil Co. has set casing at 3,750 feet in No. 2 G. H. & S. A. No. 101 G. H. & S. A. is drilling around 5,325 feet, and No. 7-B Settegast at 3,900 feet. Smith and associates have a rig up for No. 1 Settegast.

Goose Creek—Harris County

Gulf Production Co.'s No. 2 San Jacinto Bay (State) is drilling at 2,932 feet. This company's No. 19 Hoffman-Gaillard is down 2,146 feet. Humble Oil & Refining Co.'s No. 73 Simm-Smith is drilling at 4,908 feet. This company is pulling 6-inch casing in its No. 5 Gaillard and will deepen the hole. This company also started working on No. 2 Beaumont State Land and is fishing screen preparatory to deepening from a depth of 2,938 feet. Humble's No. 20 A. Smith, an old well, is being washed at 2,436 feet. Efforts still are being made to clean the hole at No. 10 Sweet.

Lube Well Oil Co. has set strainer around 1,600 feet in No. 1 Dannebaum and will make a test at that depth. Powell Oil Co. was unsuccessful in its fishing job at No. 2 Bryan and now is sidetracking at 2,550 feet.

Boling—Wharton and Fort Bend

Southern Exploration Co.'s No. 1 Mullins, on the Wharton County part of the Boling district, a deep test, is down 3,739 feet but drill stem is stuck at that depth. On the northeast flank in Fort Bend County where the Sun Oil Co. is operating actively, this company's No. 4 H. R. Farmer has been abandoned temporarily at 680 feet. No. 1 E. C. Farmer is standing after being rigged up. No. 5 H. R. Farmer is drilling around 600 feet. No. 5 J. R. Farmer is drilling around 2,300 feet, while No. 6 J. R. Farmer has just started drilling, the bit now being down around 325 feet. No. 7 J. R. Farmer also has been spudded in while a rig is up for No. 2 Kneparek.

Spindletop—Jefferson County

Gulf Production Co. got a good well at Spindletop in its No. 17-A Marrs McLean which came in flowing at the rate of 3,200 bbls. daily from the deep sand at 5,050 feet. Yount Lee Oil Co. also has completed its No. 27 fee at 5,879 feet. It made an initial flow of 1,488 bbls. of fluid daily of which 10 per cent was sediment and water.

Gulf's No. 18-A Marrs McLean is drilling at 5,062 feet, and its No. 10-A Marrs McLean, an old well being deepened, is at 5,020 feet. No. 229 Gladys is down 787 feet, and a rig is up for No. 13 Oakwood. No. 7 Jack & Duff is drilling at 4,909 feet, and No. 8, same lease, at 4,799 feet. Magnolia Petroleum Co.'s No. 7 fee is sidetracking at 5,000 feet. Paggi Brothers encountered salt water at 3,000 feet in No. 1 Gordon and have shut down. Rio Bravo Oil Co.'s No. 54 T. & N. O. is drilling at 4,025 feet.

Sun Oil Co. is drilling at 4,950 feet in No. 1 Coit. The latter's No. 19 Marrs McLean is down 5,130 feet and No. 20 at 4,360 feet. No. 2 Price is drilling at 5,170 feet.

On the northeast flank, Battleship Oil Co.'s No. 3 Parker is drilling at 2,875 feet. Another test on the north side is Traders Oil Corp.'s No. 1 Cissell, which is drilling around 2,025 feet.

Big Creek—Fort Bend County

The Texas Company's No. 3 Wheat, which encountered salt water at 3,275 feet, is drilling deeper at 3,475 feet. Gulf Production Co.'s No. 45 Davis is drilling at 1,805 feet. Two old wells drilled by the Gulf, No. 24 Davis and No. 36 Davis, are cleaning out holes preparatory to deepening.

Hardin County Domes

At Batson, East Batson Oil Co.'s No. 10 Conzelman is drilling around 1,175 feet. Hill & Dowell's No. 95 Milholme

(Continued on Page 233)

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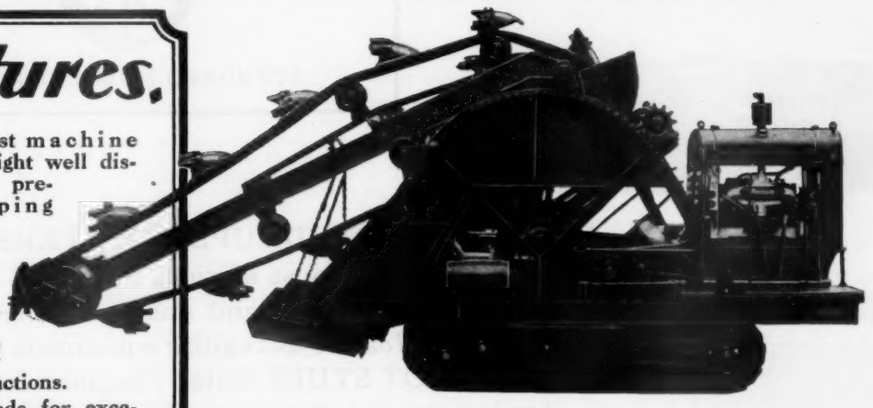

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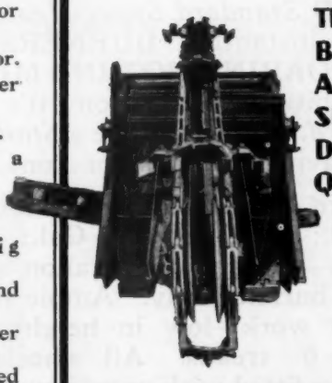

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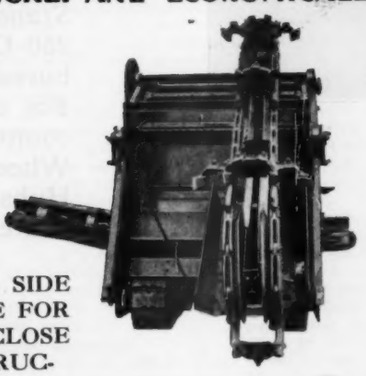

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New Iles Dome Producer in Sundance

Water Encountered in Parallel Dome Well. Salt Used to Harden Walls. Producer 10 Miles Southeast of Artesia

By D. H. Bancroft
Staff Correspondent, Rocky Mountain Area

DENVER, Colo., Feb. 4.—A larger number of completions than usual was reported for the week in the Rocky Mountain area. In Colorado, the Midwest Refining Co. has a new producer in the Sundance on the Iles Dome in its No. 34-SD Parkinson, which made as high as 1,000 bbls. a day while drilling. The Repollo Oil Co. encountered water in the Dakota at 6,137-45 feet in its test on the Parallel Dome in Boulder County, and this may end the career of the Sinclair Consolidated's subsidiary in this area. Several new tests are getting under way, one of which is to be drilled between Denver and Golden. The use of salt in covercoming cavy Bentonite formation was tried with success in the Boulder well. Union Oil Co. of California's No. 2 Foster on the Wellington Dome in Larimer County is coming in as a producer and will extend the pool one-fourth mile to the north.

In New Mexico, the Getty Oil Co. Inc.'s No. 1 Nicholas, a mile south of its No. 1 Hinkle, is reported making 4 to 5 bbls. an hour from a total depth of 1,381 feet. R. D. Compton's No. 4 Mann, on the western side of the Artesia Pool, is being completed as a producer, and the Continental Oil Co.'s test on the Carica Dome, in McKinley County, found water in the Dakota at 2,958 feet.

In Wyoming, it was revealed that the Department of the Interior had taken steps to claim all property of the Sinclair Pipe Line Co., located on the public domain under the decision of the Supreme Court in the Teapot Dome case, but that the order had been rescinded upon petition of Wyoming officials. The Wyoming Associated had one completion in Salt Creek, a 61-bbl. well in the Lakota sand, and the Continental Oil Co.'s No. 54 Whiteside in the Big Muddy is swabbing 40 bbls. The Producers & Refiners is abandoning its test on the Tensleep Dome in Washaki County, and the Union Oil Co. of California has a good show in the Tensleep sand on the North Sunshine Dome in Park County.

Utah operations were mostly routine with one new test reported starting near Vernal by the Western Venture Corp.

Producers & Refiners Move

A development affecting the entire Rocky Mountain area was the announcement that the Producers & Refiners Corp. will move its executive headquarters from Denver to Independence, Kans., about March 1, taking approximately 100 families from Denver. The departments to be moved include the executive, refining, land, accounting and marketing departments. A small district sales office will be retained in Denver and district offices at Parco, Wyo., where the company has a large investment in refineries and pipe lines and production. The company is owned by the Prairie Oil & Gas Co. and the move is being made to bring the departments closer together and to promote economy. As a result, Producers & Refiners will direct its efforts in the future more fully towards the acquisition and development of properties in the Mid-Continent Field. The company has conducted extensive drilling operations in the Rocky Mountain area for 10 years and opened up some gas and oil production and built a refinery, but no very large or profitable pools resulted from its wildcatting. The change does not mean the retirement of the company from operations in the Rocky Mountain area, but that they will in the future be directed from Independence.

Colorado

The Iles Dome in Moffat County, northwestern Colorado, has another producer in the Sundance sand in the Midwest Refining Co.'s No. 34-SD Parkinson, SE SW Section 22-4n-92, one-fourth mile west of the nearest well. It entered the Sundance at 3,227 feet, sand being dry, very hard and tight. It continued dry to 3,245 feet when a little oil commenced showing. At 3,253-59 feet, it was a flowing well. After a 24-hour test, in which it made around 300 bbls., drilling was resumed. The formation continued to soften up and while drilling was in progress the flow of oil increased. It is now bottomed at 3,289 feet, or 62 feet in the sand. This is the greatest depth into the sand so far drilled by any of the Sundance sand wells on this structure, the nearest approach to it being 20 feet into the sand. Officials of the company have not given out any figures on production, but reports from the field say that on January 30 it made 840 bbls. and the next day around 1,000 bbls. while drilling was in progress.

The important feature of the well is the change in the sand conditions and thickness of same. All the Sundance sand wells found the sand very hard and tight in the portion drilled. This, with the temperature, made the operators doubtful about the advisability of drilling deeper. However, No. 34-SD revealed a more porous sand at greater depth and no water and as a result it is expected that the other wells to that horizon will be drilled deeper. There is not much gas pressure with the oil. No. 34-SD, which is 46 feet higher on the structure, based on the Dakota, than the discovery well, topped a sand in the Morrison at 2,953 feet which made some oil. The first true Morrison sand was topped at 3,042 feet and at 3,044 feet was making around 3,000,000 feet of gas and between 200 and 300 bbls. of oil a day. The gas and oil were mudded off and another Morrison sand was topped at 3,052 feet, making 10,000,000 feet of gas at 3,054 feet where the 6¼-inch was cemented. The second Morrison sand made 11,000,000 feet of gas at a total depth of 3,070 feet and the hole still was in hard, dry sand at 3,114 feet. It went back into shale to 3,227 feet when it entered the Sundance.

Other Iles Dome wells are making routine progress. Midwest's oN. 8-SD Parkinson, NW NW Section 23-4-92, is drilling by tools, the total depth being 1,759 feet. No. 7-SD Parkinson, NW NW Section 23-4-92, is drilling brown shale at 1,425 feet. Shaffer Oil & Refining Co.'s No. 205 Yarg, NW NW Section 26-4-92, joint with the Yarg Producing & Refining Co., is bottomed at 3,405 feet, below the Dakota, and is underreaming the 8¼-inch casing at 3,315 feet. Texas Production Co.'s No. 17 State, NW SE Section 15-4-92, joint with the Kinney-Coastal Oil Co., is running the 12½-inch casing at 1,485 feet. Same company's No. 13 Parkinson, NE SW Section 22-4-92, is cementing at 2,602 feet, and its No. 6 Parkinson, NW NW Section 23-4-92, is drilling at 1,440 feet. Alliance Oil Co.'s No. 1 Milliken, SW cor. Section 14-4-92, is drilling below 850 feet.

Parallel Dome Disappointment

The long, expensive and difficult efforts to test the Parallel Dome in Boulder County have yielded a disappointment in the Repollo Oil Co.'s No. 1 Nichols, SE SE NE, Section 32-1n-70. The first Muddy sand in the Dakota formation, which was impregnated with considerable shale, was found at 6,008-32 feet. A second sandy shale horizon was topped at 6,067 feet, the thickness, on account of the quantity of shale, not being certain, and the third horizon at 6,100-21 feet. The main Dakota sand was topped at 6,137 feet and was drilled to 6,145 feet when operations were suspended. Water came in at 6,137-40 feet, but in small quantities, rising only 200 feet in the hole. The water was of a different quality from that found in the Dakota in most of the front range tests, being cold and apparently containing no sulphur while usually this horizon, if not oil-bearing, contains warm sulphur water. The well will be allowed to stand for a few days while a test of the water is made and in the meantime it will be decided whether an attempt will be made to go on down. It will be necessary to run another string of casing if drilling is to continue, but on account of the extreme depth, it is doubtful if anything more will be done.

Salt Speeded Drilling

One of the interesting features of this test was the speed with which it was drilled, especially for the past 30 days. The 6⅝-inch casing was set at 5,230 feet and the remainder of the hole is open. A total of 1,200 feet was made in 30 days, which is considered unusually good for wells drilled at that depth. This was made possible by the use of common table salt. Drillers usually have considerable trouble with cavy ground above the Dakota on account of the presence of bentonite which swells when it comes in contact with drilling water, and caves into the hole. Sometimes weeks of time is required to get through this bad formation. Upon the recommendation of Paul Whitney, geologist for the company, salt was poured into the hole at the rate of 5 pounds to each 5-foot screw. The result was that the shale stood up in good shape and did not cave. The use of salt in getting through the bentonite has been tried with success in Salt Creek, but this is the first time as far as known that it has been used in Colorado.

The Nichols is the fourth well started on the Parallel Dome in an effort to test the Dakota. One of the other wells, the Essok Oil Co.'s No. 1 Martin, NW SE Section 5-1s-70, is shut down at 5,230 feet with the 6¼-inch casing on bottom. The hole is in good condition and logs about 120 feet higher than the Nichols well. Efforts are being made to work out a plan for continuing this test on down to the objective. Since the water found in the Nichols well does not act like that usually found in the Dakota, it is probable that some arrangements for completing the well will be made to learn the significance of the conditions found.

If the Nichols well is abandoned, it is expected to mean the retirement of the Repollo Oil Co. from active operations in the Rocky Mountain area. The company is a subsidiary of the Sinclair Consolidated Oil Co., and had for its territory Wyoming, Montana, Colorado and New Mexico. It has drilled two wells in Colorado and one each in Wyoming and New Mexico. The Parallel Dome operation is said to have cost the several companies

(Continued on Page 241)

FIRST CRUDE IN MADISON LIME IN THE TURNER VALLEY FIELD

By Victor Lauriston
Staff Correspondent, Canadian Fields

CHATHAM, Ontario, Feb. 4.—In the Turner Valley Field southwest of Calgary, Spooner Oils' No. 1, LSD 12, Section 13-20-3w5, has an estimated production of 40 bbls. a day of light crude from the deep limestone. This is the first crude oil encountered in the Madison limestone in the Turner Valley Field. The test is at 4,930 feet which is 265 feet in the lime, and is fishing for a lost bit. The well is making around 3,000,000 feet a day of wet gas in addition to the oil. The crude is an amber-colored product, testing about 50 degrees Baume. Drilling may be carried a little deeper.

McLeod Oil Co.'s No. 1, LSD 16, Section 1-20-3w5, is drilling at 3,735 feet, with an estimated wet gas production around 1,500,000 feet a day. The test is in the Fernie shales at this depth.

In the north end of the field, Stockmen Oils, LSD 1-2, Section 27-20-3w5, has rigged up a temporary derrick and installed the rig irons from No. 2 well to finish No. 1. No. 1, after being drilled to more than 4,550 feet, is being finished in a gas sand at around 1,760 feet, with an estimated production of 3,000,000 feet a day. The 15-inch and 12½-inch casing will be pulled, after which the casing will be cemented to carry out the gas flow. As soon as No. 1 is finished the equipment will be moved to No. 2 in LSD 7, Section 27-20-3w5, which will be spudded in some time this month.

Vulcan Oils No. 2, LSD 11, Section 13-20-3w5, is drilling in the Fernie shales at 4,530 feet. The shales at this depth are interspersed with bands of limestone.

Illinois-Alberta Oils' No. 1, LSD 14, Section 12-20-3w5, for the week ending January 21 produced 699.4 bbls. of crude naphtha, an average of nearly 100 bbls. a day. Illinois-Alberta No. 2, same LSD, is at 1,327 feet and drilling.

New McDougall-Segur Oil Co.'s No. 3, LSD 14, Section 12-20-3w5, which spudded in recently, is reported drilling below 50 feet. No. 3 is located 400 feet west of No. 1 producer and is a further test of the Blairmore-Dakota sand horizon which produced light crude in Nos. 1 and 2 wells. No. 3 is expected to get production in this horizon at 2,700 feet. Nos. 1 and 2 are pumping steadily and making around 90 bbls. a day of light crude for the two wells.

Royalite Operations

Royalite Oil Co.'s No. 7, LSD 3, Section 13-20-3w5, is reported maintaining a production of 90 bbls. a day or better of crude naphtha from the Madison limestone at 4,208 feet. This test may be carried deeper in the spring. Royalite No. 6, LSD 16, Section 31-10-2w5, is reported at 3,854 feet and drilling. Royalite No. 8, LSD 9, Section 12-20-3w5, has resumed drilling, and is at 2,673 feet. Royalite No. 9, LSD 6, Section 13-20-3w5, is drilling at 3,126 feet. Royalite No. 10, NE Section 12-20-3w5, is at 2,244 feet and drilling. Dalhousie Oil Co.'s No. 1, LSD 4, Section 18-20-2w5, is at 4,413 feet and standing cemented; the standard rig is being dismantled to install the diamond

(Continued on Page 233)

WORTHINGTON

WORTHINGTON PRODUCTS

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steam and power, reciprocating and centrifugal

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locomotive and stationary

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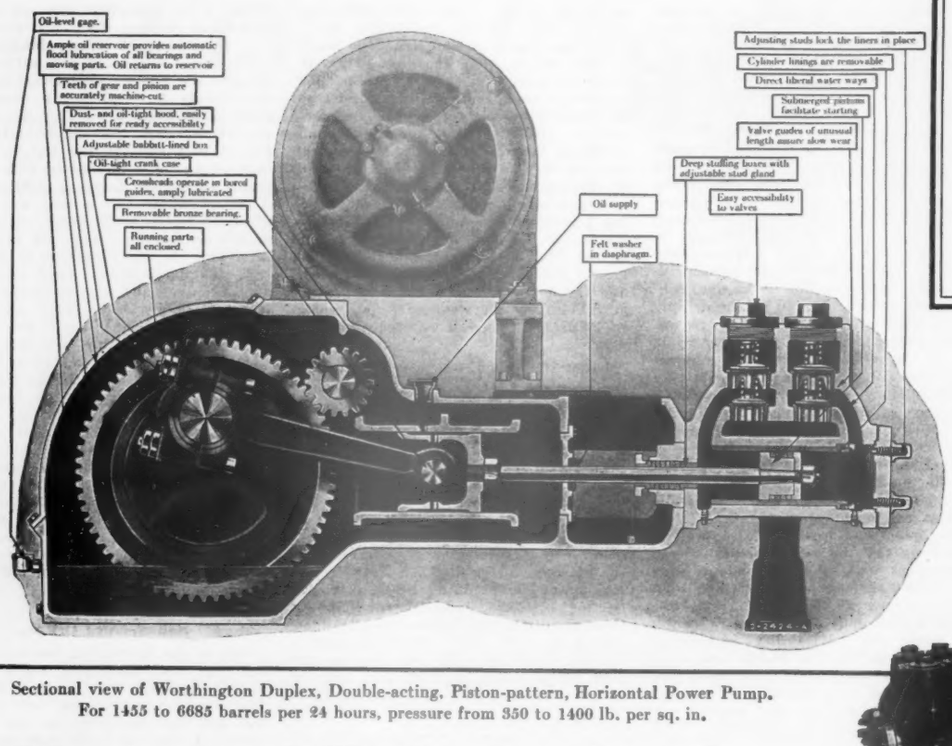
Oil-level gage.
Ample oil reservoir provides automatic flood lubrication of all bearings and moving parts. Oil returns to reservoir
Teeth of gear and pinion are accurately machine-cut.
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Oil-tight crank case
Crossheads operate in bored guides, amply lubricated
Removable bronze bearing.
Running parts all enclosed.
Oil supply
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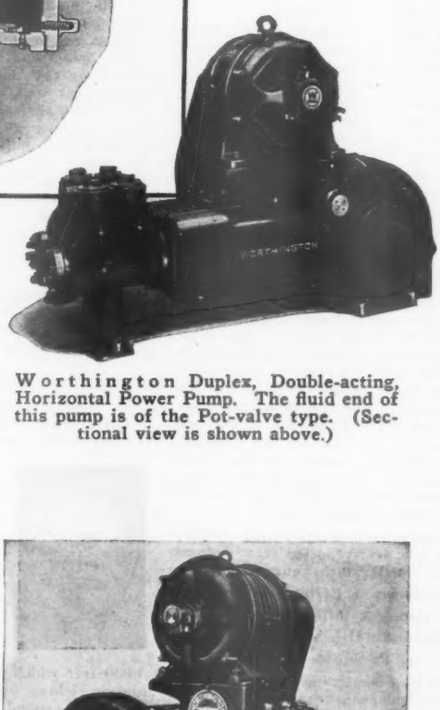
Adjusting studs lock the liners in place
Cylinder linings are removable
Direct liberal water ways
Submerged pistons facilitate starting
Valve guides of unusual length assure slow wear
Deep stuffing boxes with adjustable stud gland
Easy accessibilty to valves

Sectional view of Worthington Duplex, Double-acting, Piston-pattern, Horizontal Power Pump. For 1455 to 6685 barrels per 24 hours, pressure from 350 to 1400 lb. per sq. in.



Worthington Duplex, Double-acting, Horizontal Power Pump. The fluid end of this pump is of the Pot-valve type. (Sectional view is shown above.)

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THE entire driving mechanism of these sturdy, new oil field pumps is enclosed in a cast-iron case or cover—fully protected from dust and grit. All moving parts are splash lubricated from the oil in the crank case insuring positive lubrication at all times. The teeth of the gear and pinion are accurately machine cut and of liberal proportions to insure necessary strength, long-wearing qualities and quiet operation.

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WORTHINGTON PUMP AND MACHINERY CORPORATION. 115 BROADWAY. NEW YORK. BRANCH OFFICES IN 24 CITIES

Fruitvale Wildcat Makes 1,200 Barrels

Pacific Eastern Production Co. Opens New California Field 3 Miles Northwest of Bakersfield. Deep Test at Seal Beach

By L. P. Stockman
Staff Correspondent, California Fields

LOS ANGELES, Calif., Feb. 4.—With California standing on the verge of another substantial upward trend in production which may prove of several months' duration due to deep sand exploitation at Long Beach, the Fruitvale and Seal Beach areas have become the cynosure of operators due to developments which may prove of the utmost importance. The Marland company expects to make a conclusive test of the recently discovered deep zone at Seal Beach within 10 days, the outcome of which may prove a very important factor in future production as it might lead to additional drilling. Approximately 500 feet of oil sand is to be tested out in No. 11 Selover by the Marland company and if substantial production is secured the Alamitos Heights town lot area will be the scene of another intensive deepening campaign as this well offsets that area.

Attention was directed to the possibility of this new deep zone several weeks ago before the discovery, No. 1 Bonner of the Richfield Oil Co. came in. A 170-foot horizon has actually been proven up for clean production and while an oil sand of this thickness might be expected to result in increased production, their will be a vast difference in future production if the Marland should develop clean substantial production in No. 11 Selover and consequently prove up an additional 300 feet of oil sand, as a 500-foot penetration at Alamitos Heights might add 50,000 bbls. of additional production to the daily output of this field. The potentiality of this new horizon is therefore of paramount importance, especially in view of the fact that Long Beach is destined to show increased production during the next several months.

The Marland recently made a preliminary production test on No. 16 Selover, a second deep zone project, but water trouble prevented a successful completion. This well showed plenty of kick, and, although it was under a handicap due to a possible ineffective water shut-off, it showed a potentiality of 1,800 bbls. daily. If this cut was due to mechanical trouble Seal Beach will become a vital factor in 1928 production, but if, on the other hand, it originated in an intermediate water sand the daily output of this field may not prove serious. Seal Beach will bear the closest scrutiny during the next few weeks and, while developments to date tend to confirm the opinion of many that the new deep zone will not be a serious factor, I am rather inclined to believe that the potentiality of this sand is being underestimated.

Fruitvale Wildcat

Pacific Eastern Production Co. has just opened a new field at Fruitvale, 3 miles northwest of Bakersfield, in Kern County. The discovery well came in doing 500 bbls. daily from 3,850 feet, but later built up to 1,200 bbls. The well is producing from 14 feet of sand and the oil, which is clean and tests 25 degrees, is flowing under a pressure of 385 pounds.

Long Beach

The exceptionally fast progress made by operators exploiting the deep sand at Long Beach during the past two weeks is indicative of a larger number of completions during the next 90 days and from present indications numerous completions can be anticipated, beginning probably around the end of February. Additional new wells will, of course, be finished during the next few weeks but this will really be only an introduction as to what will follow a little later. The daily production of this field will probably reflect a gradual rise and this will be followed by a very definite upswing expected to occur during the latter part of February or early in March. The large number of new wells spudded in during the past 30 days, together with those scheduled to get under way in the near future will probably prevent any very appreciable decline in the production of this remarkable field for several months after the 1928 peak of from 150,000 to 175,000 bbls. daily has been reached. The relatively large amount of oil-bearing formation being prospected at Long Beach can be expected to register a very favorable ultimate recovery and consequently future decline curves will be rather gently in contrast with similar curves covering previous work in the Alamitos Heights town lot area of the Seal Beach Field.

Several fairly good wells were finished in the deep zone at Long Beach during the week, a total of 7,363 bbls. of new production being added. Dabney & Johnston carried off completion honors by bringing in two new wells, No. 2 Schneider and No. 4 Casenada. The former, carried down to 6,077 feet and finished with a 5¾-inch oil string carrying 377 feet of perforated and cemented through perforations at 5,700 feet, was brought in under a natural flow doing 2,180 bbls. of clean 30.1 gravity oil daily but built up the following day to 2,400 bbls. No. 4 Casenada, Dabney & Johnston's other completion listed during the past week, is of particular interest because it is the shallowest deep zone well brought in for several weeks. This new producer was carried down to 5,515 feet, from which depth it registered an initial daily production of 1,445 bbls. of clean 29.9 gravity oil. Instead of using a combination string and cementing through perforations these operators landed a 6⅝-inch water string at 5,145 feet, making a straight cement job at this depth. The well was brought in barefoot, the bottom 370 feet of hole being left open, tubing being used to complete the well instead of landing a liner. These two wells are the first producers finished by Dabney & Johnston in the lower zone at Long Beach but No. 3 Leonard and No. 5 Muriel, two others, are scheduled for early completion.

Swabbed Out Near-by Well

The Pan American put No. 2 Anderson on production early in the week after redrilling and deepening from 5,511 feet to 6,200 feet, the hole being finished with a 3-inch oil string carrying 482 feet of perforated. The initial production, 525 bbls. of clean 30.2 gravity oil and 1,000,000 feet of wet gas daily, is considerably lower than the average registered by previous deep zone completions, but this is probably due partly to irregular subsurface conditions. This well, it will be recalled, developed a peculiar affinity for No. 1 Coffin of the Rio Grande Oil Co. during the course of work several weeks ago. These two wells, both being carried down to the lower sand, encountered a subterranean channel which resulted in lost circulation. The Pan American started to swab No. 2 Anderson several weeks ago and it was found that the rotary mud was being swabbed out of the Rio Grande's No. 1 Coffin less than 100 feet away. To eliminate this channel the Pan American forced 100 sacks of cement into No. 2 Anderson under pressure and, as was expected, the cement reappeared in No. 1 Coffin. The existence of this subterranean channel is of course merely conjectural as the condition just mentioned may possibly be due to an underground collision resulting from a deviation from the vertical by one of the two projects. The Pan American is running eight strings of tools in this field and two or three additional completions should be chalked up shortly.

The McKeon Drilling Co., which is running six strings of tools finished No. 3 Ellis flowing 1,792 bbls. of 30.1 gravity oil and 2,000,000 feet of wet gas daily

IMPORTANT SOUTHERN CALIFORNIA WILDCATS

Company, well, location—	S-T-R	Depth	Status
Associated, No. 1 Cypress, Potrero	34- 2-14	5,408	recemented
Associated, No. 2 Cypress, Potrero	34- 2-14	Rig	rigging up
Smith & Carpenter, No. 1 Smith, Potrero	35- 2-14	5,420	testing
Pet. Securities, No. 1 Connolly, Potrero	27- 2-14	5,716	sd. sh. drilling
Hurst Oil Corp., No. 1 Inglewood, Los Angeles Co.	28- 2-14	3,772	suspended
Mont. Park Oil Co., No. 1 Browning, Monterey Park	26- 1-12	3,340	suspended
Associated, No. 1 Patterson, Pico	13- 2-12	4,850	hd. sd. drilling
Circle Oil Co., No. 1 Pomeroy, Manchester	23- 3-14	4,280	suspended
Shell, No. 1 Mission, San Fernando	4- 2-15	4,928	fishing
Carr, O. K., No. 2 Foster, San Juan Capistrano	13- 8- 8	4,230	suspended
Andrews, Otis, No. 1 Lancaster, Los Angeles Co.	23- 8-13	1,053	sd. drilling
Southwest Pet. Co., No. 1 Ramsauer, Watts	4- 3-13	4,302	suspended
Security Pet. Co., No. 1 Lynwood, Los Angeles Co.	13- 3-13	3,214	hd. sd. drilling
Dominguez Ext., No. 1 Compton, Los Angeles Co.	27- 3-13	5,510	fishing
San Clemente Oil Co., No. 1 Peck, Hawthorne	20- 3-14	5,760	will test
O'Donnell, J. E., No. 1 Dupree, Hawthorne	29- 3-14	5,304	suspended
Scott & Currier, No. 1 Hawthorne, L. A. County	33- 3-14	Rig	rigging up
White Behr, No. 1 Watson, L. A. County	21- 4-14	4,420	hd. sd. drilling
Buttrum, F. W., No. 1 Richfield, Orange Co.	36- 3- 9	2,501	sd. sh. drilling
Son, C. A., No. 1 Pinkerton, Orange Co.	5- 5-11	3,620	may abandon
Olympic Ref. Co., No. 1 Sunset Beach, Orange Co.	19- 5-11	3,211	gr. sd. drilling
Getty, George F., No. 1 Seal Beach, Orange Co.	14- 5-12	992	tem. suspended
Shell, No. 1 Stern, Orange Co.	22- 3-10	3,587	hd. sd. drilling
Hemet Pet. Co., No. 1 Ward, Riverside Co.	9- 5- 1	1,956	hd. sd. drilling
Mesa Pet., No. 1 Newport, Orange Co.	21- 6-10	1,804	hd. sd. drilling
Pet. Securities, No. 1 Fairview, Orange Co.	3- 6-10	4,734	to abandon
Davenport O. & G. Co., No. 1 S. Marcos, S. Diego Co.	30-12- 2	355	hd. sd. drilling
Turner, S. S., No. 1 Escondido, San Diego Co.	25-12- 2	320	sd. drilling
Mills, J. P., No. 1 Pueblo, San Diego Co.	18-15- 3	1,501	sd. drilling

IMPORTANT NORTHERN CALIFORNIA WILDCATS

General Pet., No. 2 Ochsner, Kettleman Hills	28-22-18	6,330	cleaning out
South Coalinga, Well No. 1, Kettleman Hills	35-24-19	2,992	bl. sh. drilling
Monocline Dev. Co., Well No. 1, Kettleman Hills	7-21-21	4,308	suspended
McPhail, Hugh, Well No. 1, Kettleman Hills	13-24-18	2,095	cleaning out
Milham Expltn., No. 1 Kettleman, Kings Co.	2-22-17	6,496	fishing
Shell, No. 2 Berrywood, Moorpark	32- 3-20	6,420	hd. sd. drilling
Continental Oil Co., No. 1 Burnham, Ventura Co.	22- 5-18	3,790	to abandon
Star Petroleum, No. 2 Canet, Ventura Co.	13- 3-23	4,895	hd. sd. drilling
Standard, No. 1 Camarillo, Ventura Co.	29- 2-20	5,720	abandoned
Standard, No. 3 Saticoy, Ventura Co.	9- 3-22	515	sd. drilling
Exline, Emma, No. 1 Saticoy, Ventura Co.	33- 3-21	Rig	rigging up
Petroleum Sec., No. 1 Diablo, Ventura Co.	26- 5-18	4,148	hd. sd. drilling
Parkford, E. A., No. 1 Strathern, Ventura Co.	5- 2-18	4,002	suspended
Shell, No. 1 Strathern, Ventura Co.	6- 2-18	2,601	hd. sd. drilling
Shell, No. 1 Oxnard, Ventura Co.	35- 2-22	902	sd. drilling
Miley Oil Co., No. 1 Red Mountain., Ventura Co.	7- 3-23	980	suspended
Keck Inv. Co., No. 1 Fillmore, Ventura Co.	35- 4-20	2,802	hd. sd. drilling
McAdams, J. E., No. 1 Buttonwillow, Kern Co.	26-29-23	4,278	br. sh. drilling
Milham Explth., No. 2 Buttonwillow, Kern Co.	8-28-23	4,662	gas well
Milham Explth., No. 2 Kern, Kern Co.	8-28-23	2,730	gas well
Doheny-Stone, No. 3 Buttonwillow, Kern Co.	7-29-24	4,150	will deepen
So. Calif. Gas Co., No. 1 Buttonwillow, Kern Co.	4-28-23	916	sd. drilling
Semitropic Oil Co., No. 1 Semitropic, Kern Co.	21-26-22	1,001	hd. sd. drilling
Pacific Eastern, No. 1 Fruitvale, Kern Co.	21-29-27	3,851	looks good
Pacific Eastern, No. 1 Union Ave., Kern Co.	6-30-28	5,435	hd. sd. drilling
Pacific Eastern, No. 2 Union Ave., Kern Co.	6-30-28	1,280	sd. sh. drilling
Superior Oil Co., No. 1 Edison, Kern Co.	24-29-29	Rig	rigging up
Stabler, W. W., No. 1 Comanche Point, Kern Co.	23-32-29	Mtl.	building rig
Midway Northern, No. 1 Edison, Kern Co.	29-29-30	2,436	hd. sd. drilling
Shell, No. 1 Corral Canyon, Kern Co.	16-26-28	779	set pipe
Shell, No. 1 Mon Bluff, Kern Co.	3-28-28	3,960	reaming
North American, No. 1-A Delano, Kern Co.	5-25-26	2,800	sd. sh. drilling
Fresno Madera Oil Co., No. 1 Clovis, Fresno	18-12-21	4,005	hd. sd. drilling
Berneyberg Oil Co., No. 1 Brown, San Luis Obispo	26-32-14	2,296	hd. sd. drilling
Richfield, No. 1 Wreden, San Luis Obispo Co.	10-29-17	2,950	hd. sd. drilling
Miley Oil Co., No. 1 Carisa, San Luis Obispo Co.	15-29-17	2,540	suspended
Union Oil Co., No. 1 Huasna, San Luis Obispo	34-32-15	1,362	sd. drilling
Sequoia Oil Co., Well No. 1, San Mateo Co.	13- 7- 5	1,048	hd. sd. drilling
Shell, No. 1 Cowell, San Mateo Co.	8- 6- 5	5,660	hd. sd. drilling
Shell, No. 1 Butts, San Mateo Co.	21- 6- 5	803	sd. drilling
Shell, No. 1 Rossi, Petaluma	8- 5- 6	815	sd. drilling
Thomas & Hammill, Well No. 1, Alameda Co.	16- 3- 3	1,470	cleaning out
Tepusquet Oil Co., Well No. 1, Santa Barbara Co.	3- 9-32	903	sd. drilling
Becker, Geo. F., No. 1 Summerland S. Barbara Co.	33- 4-25	3,029	recemented
Twin State Oil Co., No. 1 Modoc, S. Barbara Co.	20- 4-27	2,370	sd. sh. drilling
Birch Oil Co., No. 1 Porterville, Tulare Co.	13-20-26	3,460	hd. sd. drilling
Fort Wayne Synd., No. 1 Goodcell, Madera Co.	22-10-17	2,250	fishing
Continental Oil Co., No. 2 Smith, Colusa Co.	31-18- 4	4,298	hd. sd. drilling
Marland Oil Co., No. 1 Bradley, Monterey Co.	32-24-11	Mtl.	building rig

TANKER SHIPMENTS FROM LOS ANGELES TO ATLANTIC AND GULF COAST PORTS

Commodity—	Total this week	Daily average	Total last week	Daily average	This year to date	Same time last year
Crude oil	171,798	24,543	156,154	22,308	756,906	632,069
Fuel oil	.....	.....	.....	.....	.....	994,563
Diesel and gas oil	93,476	13,354	.....	.....	165,656	411,575
Gasoline	413,109	59,014	192,122	27,446	1,046,071	1,067,020
Coastwise—						
Crude oil	336,992	48,142	231,635	33,091	1,283,419	3,256,479
Fuel oil	346,950	49,564	251,043	35,863	1,576,237	1,679,729
Diesel and gas oil	.....	.....	9,956	1,422	170,299	13,639
Gasoline	219,023	31,289	210,236	30,034	994,734	988,490
Kerosene	.....	.....	1,059	151	11,511	23,568
Tops	.....	.....	.....	.....	30,500	.....
Exports—						
Crude oil	72,102	10,300	54,578	7,797	180,780	394,752
Fuel oil	388,141	55,449	584,681	83,526	2,413,402	2,904,142
Diesel and gas oil	70,932	10,133	70,914	10,131	233,705	63,827
Gasoline	63,818	9,117	142,011	20,287	422,252	314,497
Kerosene	112,016	16,002	86,877	12,840	337,385	281,669

TANKER SHIPMENTS FROM SAN FRANCISCO TO ATLANTIC, GULF COAST PORTS

Commodity—						
Diesel and gas oil	74,180	10,597	.....	.....	167,695	96,087
Gasoline	.....	.....	.....	.....	154,238	172,907
Lubricants	69,854	9,979	.....	.....	69,854	58,110
Coastwise—						
Fuel oil	70,122	10,017	48,711	6,959	431,102	545,740
Diesel and gas oil	.....	.....	.....	.....	1,478	134,308
Gasoline	11,780	1,683	12,720	1,817	182,965	482,440
Kerosene	.....	.....	.....	.....	29,862	6,166
Exports—						
Fuel oil	.....	.....	50,897	7,271	223,325	147,661
Gasoline	227,835	32,548	78,851	11,264	569,695	259,354
Kerosene	.....	.....	80,391	11,484	80,391	130,267
Lubricants	.....	.....	.....	.....	.....	9,120

from 5,615 feet and unless some unforeseen trouble develops this concern will finish No. 2 Evans and No. 1 MacCrate within 15 days. The Bolsa Chica Oil Co., which is drilling an offset to this well, stepped out and made 5,590 feet of hole in less than 60 days and indications point to the completion of a large producer along about the middle of February. The Shell brought in No. 11 Cresson and flow charts show an initial production of 1,200 bbls. of 30.1 gravity oil from 6,335 feet. This well developed an exceptionally high gas pressure and blew in prematurely, with the result that it is producing barefoot. Drilling reports of operations in the Long Beach Field are getting larger with each succeeding week and the 231 projects actually under way vividly portray the intensive development inaugurated immediately following completion of the discovery well, No. 1 Alamitos of the Shell, back in 1921. It is probably very difficult for eastern operators to appreciate existing conditions for it hardly seems believable that in excess of 200 strings of tools could be in operation in a six-year-old field which has already produced in excess of 260,000,000 bbls. This is a fact, however, and it might be of interest also to call attention to the fact that further work will be undertaken during the next several months. The Shell has at least 50 additional locations available for work when desired and a superficial check indicates that the California Petroleum and Richfield have about 15 locations each.

Ambitious Drilling Program

The A. T. Jergins Syndicate will probably undertake a very ambitious drilling program in this field in the very near future if the Long Beach City Council accedes to a recent request for a substantial reduction in royalty payments. The Jergins interests secured a lease on some municipally owned acreage in this field several years ago when Long Beach first broke into the limelight and according to the stipulations mutually agreed upon, the city of Long Beach was to receive 40 per cent of the total amount of oil and gas produced. This contract called for a certain number of wells and the minimum requirements having been rigidly fulfilled, the Jergins interests have offered to undertake extensive work if the municipality will reduce the existing royalty of 40 per cent to 16⅔ per cent. The lease held by Jergins is one of the most favorably undeveloped pieces of acreage in the field and with the Jergins interests willing to undertake additional work which would be mutually beneficial, the Long Beach City Council will probably give this subject very careful consideration. This may not result in an outright reduction of the present 40 per cent royalty as it has been suggested that the existing royalty be paid on the production from wells now producing and a one-sixth royalty on the output of any new projects finished in the future.

One of the most interesting features in connection with the deep sand exploitation under way at Long Beach is the exceptionally large amount of drilling being done by the principal major companies. In town lot drilling campaigns the majority of drilling is usually done by independents but in the present instance the major companies and a few of the more progressive independent operations will probably account for about 50 per cent of existing work. A check of present drilling operations indicates that the California Eastern has 11 new wells and deepening projects under way—California Petroleum 15, Dabney & Johnston 4, Delaney Petroleum 4, General Petroleum 12, George F. Getty 9, McKeon Drilling Co. 5, J. E. O'Donnell 7, Pan American 8, Richfield 13, Rio Grande 7, Shell 23, Superior 7 and the Union Oil Co. 10, a total of 135 strings out of 231 wells actually under way.

Seal Beach

No. 1 Bonner of the Richfield Oil Co., the first successful completion in the deep sand found at Alamitos Heights, dropped to 400 bbls. per day last week but the output has subsequently reacted favorably to artificial stimulation. The well was put on a compressor a few days ago and present production is averaging around 625 bbls. The Marland has recemented No. 16 Selover, a deep well, located about 500 feet south of No. 1 Bonner, and another test will be made of this 6,600-foot project in the near future No. 11 Selover will probably make a bid for production in the meantime and the outcome will probably go a long way toward determining the productivity of this lower zone, located between 6,100 feet and 6,605 feet. No indication of any extensive deep sand drilling in the older section of the Seal Beach is evident and it is probable development work in this area will be held back as long as possible. The only deep drilling projects in the old field are the Associated's No. 16 Hellman at 5,847 feet and the Standard's No. 14 San Gabriel at 5,412 feet.

Ventura Avenue

That Long Beach is not the only area in California where deep drilling is in progress is evidenced by the fact that the world's record for deep production has been surpassed twice in the Ventura Avenue Field during the past few weeks. The Shell acquired this record early in January by bringing in No. 18 Edison flowing 3,750 bbls. of clean 30.2 gravity oil daily from 7,015 feet and while this is not the deepest well ever finished, it is the largest substantial deep sand producer. The Shell held this record for about three weeks or up until a few days ago when it passed into the hands of the Associated Oil Co., due to the latter's completion of No. 1 Dabney-Lloyd which has just been finished at 7,032 feet. This new well showed an initial production of 425 bbls. and 500,000 feet of well-saturated gas daily. No. 1 Dabney-Lloyd is located in the extreme part of the Ventura Avenue Field and while it may not be as deep stratigraphically as the Shell's No. 18 Edison it is 17 feet deeper from surface to completion. The Associated has two additional deep sand wells nearing completion in this field and both of them, Nos. 51 and 102 on the Lloyd property, should be tanking oil within 30 days unless mechanical trouble develops. The Shell will probably finish three new wells, No. 17, 19 and 20 on the Edison property simultaneous with the completion of the two wells scheduled to be chalked up by the Associated. The Petroleum Securities will probably also finish two new wells about the same time and if these seven projects come up to expectations the daily production of the Ventura Avenue Field will undoubtedly show a very perceptible increase between now and early in March.

It is interesting to note that daily production at Long Beach is also scheduled to show a very substantial gain about the same time and it is highly probable that state production will show a rather violent fluctuation during the next 60 days. Operators in the Ventura Avenue Field have not yet shown any inclination to suspend development work, new wells being started immediately upon completion of drilling projects. It is possible, of course, that a temporary suspension may be later brought about in sympathy with the production situation at Long Beach. It is to be hoped that such a policy will be invoked, for unless drilling operations are slowed up, Long Beach and Ventura Avenue may force State production to a considerably higher level. At the present rate of development 23 new wells should be finished in the Ventura Avenue Field within three or four months and their completion should result in a very substantial increase in daily production.

Kern River

The West Front section of the Kern River Field yielded its usual weekly quota of new wells and a check of the development work under way indicates the probable completion of additional new wells during the next several weeks unless the anticipated substantial increase in production at Long Beach and Ventura Avenue should result in a temporary respite. The Chanslor-Canfield Midway Oil Co. chalked up the best well finished this week when No. 14 in Section 23-28-27 was put on the beam at 2,196 feet. This new well showed an initial pumping of 188 bbls. of 14.4 gravity oil daily. The Standard carried off completion honors in this area by adding two new wells to its producers. No. 19 in Section 15-28-27 registered an initial pumping of 130 bbls. daily from 2,603 feet while No. 3 in Section 21-28-27 started off pumping 148 bbls. of 14.5 gravity oil daily from 2,400 feet. The General Petroleum also finished two new wells but only one, No. 12 Whetmore, was actually completed. The other, No. 5 Sill, will be tanking oil tomorrow. The company's latest acquisition, No. 12 Whetmore, was a 142-bbl. pumper from the 2,027-foot level. The Petroleum Securities finished No. 9 Robinson as a 145-bbl. pumper from 2,549 feet. The most important development was the spudding in of two new wells and the staking of four additional locations by this company in Section 22-28-27. The California Star spudded in a new well in Section 22-28-27 a few days ago and concrete will be poured for an additional derrick foundation within 10 days. George F. Getty, who pioneered this area, is running three strings on the McDougall property and will complete the erection of two new rigs within 10 days. The Standard chalked up two new producers in the Midway-Sunset Field. No. 45 in Section 3-32-24 came in pumping 60 bbls. daily from 3,100 feet while No. 92 in Section 19-31-24 made 138 bbls. on the beam from 4,420 feet. The Signal Gasoline Co. is rigging up rotary equipment for a new well in the Granite Canyon section of the Mount Poso Field and this well, an offset to the Union's No. 1 Tribe, a recent completion, will be spudded in soon. The Miocene Oil Co. is rigging up a new well southeast of the Signal Gasoline interests and actual drilling will get under way soon.

Huntington Beach

Two wells were put on production in the town lot area of the Huntington Beach Field, one a recompletion. This was the Standard's No. 13 on the Pacific Electric lease, which parallels the ocean front. The clean out job on this project, however, was not very successful as it was returned to production pumping only 60 bbls. of 22.6 gravity oil daily from the 3,820-foot level. The H. & P. Oil Co. completed its No. 2 Y. & L., a new well at 3,960 feet, from which depth it registered an initial pumping of 380 bbls. of exceptionally clean 23.8 gravity oil daily. A check of drilling operations in this area shows several projects nearing completion in the shallow zone. The Union recompleted No. 2 Rosecrans in the Rosecrans Field making 172 bbls. of 30.4 gravity oil daily. At Dominguez the Union finished No. 21 Callender, a new well carried down to 4,210 feet but plugged back to 4,180 feet. The plug has evidently not proven successful, as the initial pumping, 160 bbls. daily, is cutting about 25 per cent water.

The Union's field department at Richfield has just closed a very busy week due to the completion of three wells in that area. Nos. 12 and 17 on the Yorba Linda group property were successfully finished, although the production in neither case was large. The former, a recompletion, was returned to production doing 210 bbls. of 21.4 gravity oil daily from 4,513 feet. No. 17, a new well, came in flowing 220 bbls. daily from the shallow zone at 3,128 feet. No. 11 Stern, another new project, tanked 150 bbls. of 23.2 gravity oil during the initial 24-hour test from 4,326 feet. Drilling operations in the Richfield district have slowed up very appreciably during the past few months due to present development work in the Long Beach Field. The Standard finished a small pumper on the Baldwin lease at Montebello when No. 71 was put on the beam from 3,550-foot level. The initial production, 55 bbls. daily, tests 21.2 degrees and shows a cut of approximately 10 per cent. The Standard's next completion in this field should be No. 2 Benedictine, which is rotating ahead in the oil sand at 3,742 feet.

Northern California Wildcats

The success which has attended wildcatting operations of the Pacific Eastern at Fruitvale and Union Avenue will undoubtedly stimulate prospecting work in the San Joaquin Valley during the rest of the year. Leases have recently been consummated covering about 5,000 acres of potential oil land in Kern County in four widely separated areas, including the

(Continued on Page 237)

INDIANA HAS MOST WATCHED AREA IN THE CENTRAL WEST OIL FIELDS

By Whit

Staff Correspondent, Central West Fields

FINDLAY, Ohio, Feb. 4.—With near zero weather prevailing little is being accomplished in any of the divisions of the Central West Field. Only two completions were reported from the old Lima Field of northwestern Ohio during the past several days. In Cynthian Township, Shelby County, the Eilerman Oil Co. struck a 10-bbl. initial producer at No. 4 on the N. A. Paulis farm, Section 35.

The Petroleum Producing Co.'s No. 3 well, 320 feet from the south line and 660 from the east line of the Joe Mallory farm, in the NE of Section 9, Noble Township, Auglaize County, topped the Trenton sand at 1,130 feet and at 40 feet in the sand to a total depth of 1,170 feet, was given a shot and the first 24 hours' production being 10 bbls.

In Wood County, Arthur Hanawalt is starting a test on his own farm, in Section 20, Center Township, and W. F. Johnson is drilling his No. 10 on the D. Lahy farm, Section 24, Perrysburg Township, same county.

Syl. Metzger is starting a test on the Otto Kaverman farm, Section 25, Washington Township, Allen County, and in American Township, same county, the Ohio Oil Co. abandoned No. 2 on the D. L. Bechtel farm, Section 16.

Arthur and Simpson have started the drill at a test on the R. R. Botkins farm, Wayne Township, in the northeastern part of Auglaize County. In Salem Township, same county, the Bachelor Oil Co. is drilling No. 14 on the William T. Seibert farm, Section 3. In Pusheta Township, same county, the Farmers Oil Co. is drilling a wildcat on the George Headipohl 74-acre farm, Section 18, and Wesley Sprague is drilling No. 8 on the Charles Fritz farm, Section 16, Moulton Township.

John Karsh is drilling a test on his own farm, Section 8, Jefferson Township, Mercer County.

Several tests are under way in the Forest Gas Field, in parts of Hardin and Wyandot Counties. In the Wharton area of Wyandot County the Wharton Oil & Gas Co.'s test on the Jacob Knackley farm struck top of Trenton at 1,328 feet and went 46 feet in the sand, the well showing for one-half barrel of oil and about 200,000 feet of gas. Same company's No. 2 on the Andy Wells farm got top of the Trenton at 1,307 feet and went 41 feet in the sand, showing for 200,000 feet of gas and some oil. Same company's No. 1 on the Kramer farm topped the Trenton at 1,319 feet and went 50 feet in, getting but little gas and possibly a half barrel of crude oil. This company is composed of farmers and the development is in that vicinity and only a mile east of the town of Wharton is the trunk line from the Central Ohio Field, through Carey, Findlay and into Toledo. The Wharton gas is very good and does not contain the large amount of sulphur found in Hardin and other nearby sections.

Indiana Field

Just at this time the mostly watched area is in what is known as the "Little Oklahoma Field," which is along the division line of Sullivan and Vigo Counties in the western part of Indiana, south of Terre Haute and north of the town of Sullivan. In the Vigo County end, the work is being done in Prairie Creek Township, while in Sullivan County the

(Continued on Page 206)

WESTCOTT VALVES

WESTCOTT Pipe Line Valves are now available from stock in 18" and 20" sizes. The photograph shows one of a recent shipment of 16" air-operated WESTCOTTS. Specializing in valves for the Oil Industry, WESTCOTT is now recognized as the leading maker of oil and gas pipe line valves.

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CONTINENTAL

Bigger Than Average Wells in the East

Perry County Leads With Most Producers, One Being the Largest in Southeast Ohio in Months

By D. S. Wakenight
Staff Correspondent, Eastern Fields

PITTSBURGH, Pa., Feb. 6.—Development work in the eastern fields showed some improvement since last reviewed. More and better producers were completed during the week than for more than a month. Southeast Ohio's deep sand territory came to the front with several very good wells and a number better than the average. Weather conditions have been favorable for field work but there is not much new work starting in any section, neither is there any district that shows unusual activity. Recently Perry County in southeast Ohio showed an increase in operations, but the new work is well within defined limits. There is practically no effort made to find strictly new producing territory.

When market conditions improve there will be something doing along that line, despite the fact that nothing of the kind was discovered last year. So few sections remain that have not been fully tested and in some of these a new pool may be brought to the front. West Virginia holds more possibilities than any other section in the eastern fields, unless some new discoveries can be made in the deep sand territory in southeast Ohio. It is believed that southwest Pennsylvania can never again furnish a pool of appreciable dimensions.

Best Producers of Week

The deep sand territory in southeast Ohio completed more good producers than for any other week in a number of months. It is the deep sand territory that has been furnishing most of the new production in the eastern fields. Perry County has more good producers than any other county at this time.

In the NW, Section 21, Harrison Township, Perry County, the Wehrle Co. drilled into the Clinton sand a test on the Claude Pletcher farm. It showed for a natural producer good for 50 bbls. a day. It was then given a shot and flowed 506 bbls. the ensuing 24 hours. This gives the well the distinction of being the largest producer in the eastern fields.

In the NW, Section 21, Harrison Township, Perry County, William Cline and others drilled a test on the G. M. King farm into the Clinton sand and it flowed 185 bbls. the first 24 hours after shot.

M. F. Whitehill's second test on the Francis heirs' farm, in the NE, Section 6, Hopewell Township, Muskingum County, produced 100 bbls. the first 24 hours after shot in the Clinton sand.

In the SE, Section 16, Hardy Township, Holmes County, Burtner Morgan and others have completed and shot in the Clinton sand No. 3 on the George Schuler farm. It produced 110 bbls. the first 24 hours after shot.

In the SW, Section 27, Harrison Township, Perry County, the Snyder Oil Co. completed and shot in the Clinton sand a test on P. R. Snyder farm. It produced 80 bbls. the first 24 hours. In the NE, same section, the Bloomingville Oil & Gas Co. has a 40-bbl. producer at a test on the Maxwell heirs' farm. In Coal Township, the Hope Construction & Refining Co. completed No. 3 on the Eli West farm and good for 75 bbls. a day.

West Virginia

The West Virginia fields had but three completions better than the average. On Trace Fork, DeKalb district, Gilmer County, the Hope Natural Gas Co. drilled its test on the Catherine Wilt farm into the Big Injun sand. It produced 60 bbls. the first 18 hours. In Henry district, Clay County, the Virginian Gasoline & Oil Co. completed No. 16 on the Brown, Swan, Goshorn & Geary tract estimated good for 25 bbls. a day. This location is inside defined limits.

In DeKalb district, Gilmer County, the Hope Construction & Refining Co. completed in the Big Injun sand a test on the Fred Wilt farm, estimated good for 25 bbls. a day, after shot.

Late Completions

On Jakes Run, Clay district, Monongalia County, the South Penn Oil Co. has completed No. 6 on the Simon Tennant farm. It is a duster. On Gillespie Run, Grant district, Ritchie County, the same company completed No. 6 on the W. H. Mason farm. It was dry in the Berea grit, but has been shot in the Big Injun sand and is a light pumper.

In Curry district, Putnam County, Wysong & Jaynes have a gasser in the Big Injun sand at No. 3 on the Roberts-Vandelinde farm. In Coal district, Harrison County, the Clarksburg Light & Heat Co.'s No. 258 on the Gore-Reynolds farm is a gasser in the Speechley sand. In Ten Mile district, the Furner Oil Co. has a Fourth sand gasser at No. 7 on the John Furner farm.

Near the village of Herr, Lee district, Calhoun County, on Barnes Run, the Hope Construction & Refining Co. has completed in the salt sand a test on the John Slider farm and it is a gasser good for 1,500,000 feet.

In Battelle district, Monongalia County, the Pittsburgh & West Virginia Gas Co. has a gasser in the 30-foot sand at a test on the Clark Lemley heirs' farm. In the same district, the Clovis Oil & Gas Co. has a gasser in the Bayard sand at a test on the Fred Clovis farm.

Duster in Marshall County

In Liberty district, Marshall County, the Manufacturers Light & Heat Co. has a duster in the Gordon sand at a second test on the W. H. Downey farm. In Clay district, Wetzel County, the Wetzel Gas Co. has a Gordon sand gasser on the W. H. Kimble farm.

In Jefferson district, Lincoln County, Pridemore & Adkins have a gasser in the Berea grit at a test on the E. G. Stone farm. In McComas district, Cabell County, the West Virginia Gas Corp. has a gasser in the same formation at a test on the Irving Morrison farm.

In Burning Springs district, Wirt County, Roberts Brothers have a very light pumper at No. 37 on the Rathbone Oil Tract, in Spring Creek district, the Dailey Oil Co. is drilling on the S. E. Badgett farm. In Otter district, Pauley & Co. have a gasser on the H. Clowser farm. In the same district, the United Gas Co. is drilling on the D. S. and C. F. Engle farm. In Williams district, Wood County, Smith & Goldish have a 2-bbl. pumper at No. 5 on their own farm. In Walker district, Peter Smith is due in the sand on Senator Goff's farm.

In Crook district, Boone County, the Boone Oil & Gas Co. completed a second test on the W. F. Mooney farm gasser. In the same district, the Columbian Carbon Co.'s No. 3 on the T. L. Brown farm is also a gasser.

In DeKalb district, Gilmer County, the Hope Natural Gas Co. has drilled its test on the Mary Bowie farm through the Big Injun sand and dry. In Lee district, Calhoun County, the Calhoun Oil & Gas Co. completed and shot a test on the J. C. Smith farm which produced 50 bbls. the first 48 hours. In the same district, W. H. Bickel's No. 1 on the James S. Wolverton farm is dry in all sands.

In Coal district, Harrison County, the Clarksburg Light & Heat Co. has a gasser at No. 257 on the Gore tract. In Geary district, Roane County, the Cromwell Oil & Gas Co.'s test on the J. R. Allen farm is a gasser in the Big Injun sand. In Walton district, the United Fuel Gas Co. has a gasser in the same formation at a test on the Taylor farm. In the same district, the Buffalo Oil & Gas has a gasser at No. 4 on the Taylor heirs' farm. In Ten Mile district, Harrison County, C. M. Lyons & Co. have a Fifth sand gasser at a test on the Eva J. Goodwin farm.

Test Wells

In Sherman district, Calhoun County, W. S. Bailey & Co. are rigging up at a test on the Charles Robinson farm. In Otter district, Braxton County, the United Fuel Gas Co. has started to drill on the D. S. and C. F. Engle farm. In Sheridan district, Calhoun County, Martin Crawley is drilling on the John and Mahala Buck farm.

On Leatherwood Run, Big Sandy district, Kanawha County, the United Carbon Co. has completed No. 13 on the Osborne farm and is a gasser. On Robison Fork, McClellan district, Doddridge County, the Elghorn Oil & Gas Co. has a very light show of oil in the Gordon sand at a test on the R. R. Chipps farm.

In Big Sandy district, Kanawha County, the United Fuel Gas Co. has a fair gasser at a test on the Updegraff farm. In Freemans Creek district, Lewis County, the Hope Natural Gas Co. has drilled down from the Gantz to the Gordon sand a test on the J. C. Starcher farm. It is not good for more than a barrel a day in the lower formation. In Courthouse district, the South Penn Oil Co.'s No. 6 on the M. M. Summers farm is a duster in all sands.

The Conservative Gas Co.'s test on the E. J. Goodwin farm is a gasser in the Fifth sand. In the same district, D. C. Louchery is drilling on the J. B. Courtney heirs' farm.

Doddridge County

In Cove district, Doddridge County, Ira Cox has completed a test on the Levi Spurgen farm. It is dry in the Big Injun sand and has been abandoned. In Grant district, Ritchie County, the Southern Oil Co. has a duster in the Big Injun. It has been abandoned. In Murphy district, J. F. Deem & Co. have drilled deeper No. 3 on the Joseph Tingler farm. It is a gasser in the Big Injun sand.

In Sherman district, Calhoun County, the Hope Natural Gas Co. has a gasser in the Big Injun sand on the Creed Yoak farm. In Lee district the same company has a gasser in the salt sand on the Slider farm. In the same district, the United Carbon Co. has a duster in the Big Injun sand at a test on the Jemima Smith farm.

In Mannington district, Marion County, the Clifton Oil & Gas Co. is rigging up to drill to the lower sands No. 5 on the O. N. Keen farm. In Grant district, Ritchie County, the Southern Oil Co. is fishing at 2,020 feet on the Andrew Douglas farm. In McClellan district, Doddridge County, the Manufacturers Light & Heat Co. is drilling on the J.

(Continued on Page 218)

BEST WELL IN DAVIESS COUNTY STIMULATES WESTERN KENTUCKY

By Whit
Staff Correspondent, Kentucky-Tennessee

OWENSBORO, Ky., Feb. 6.—While quietude prevails in the eastern portion of Kentucky at present, the western portion is full of scouts and oil operators, hurrying from place to place gathering available unleased acreage in Ohio, Daviess, McLean, Breckenridge, Henderson, Union and other counties. This activity comes from the good wells found in the six counties mentioned. The latest find of consequence is a test drilled by Miller and Damron, also known as the Creek Drilling Co., on the Jim Brown farm, in the southern part of Daviess County, on a line between the Stevens and Dimmick wells, the latter being in McLean County, and the new pipe line is close enough to the Brown wildcat to be connected up in a very short time. The Brown farm is 1½ miles southwest of the Stevens farm well, owned by Percy Jolly and others of Cleveland, Ohio, and the oil is found in the same formation, while the Dimmick well is approximately 2 miles southwest of the Brown well. The top of the sand in the Brown well was reported at close around 1,200 feet and at 20 feet in the sand, the oil rose to the top of the hole and indications are for an excellent producer, some of the operators claiming it makes the best showing of any well yet found in Daviess County. At the 20-foot depth in the sand no water sand showed up as was the case in the Stevens farm well, although the Stevens well found 35 feet of sand. In case by deeper drilling the water sand shows up it will be plugged above the water sand and given a shot. This Brown test makes a strip of territory close to 3½ miles northeast and southwest look good, but dry holes may be found as is usually the case in Kentucky.

Work is starting up in the Tennessee end of the field and if the weather moderates and the ground dries so material can be handled, additional activity should be seen.

Week's Work

A summary of the week's work in the Kentucky fields shows 21 completions, 16 producers with an initial production of 493 bbls., and 5 dry holes. Compared with the previous week there were 5 more completions, 7 more producers, 195 bbls. more production, 1 less dry hole, and 1 less gas well. The wells were distributed as follows:

County—	Comp.	Wells	Prod.	Dry	Gas
Ohio	4	3	300	2	0
Barren	4	4	45	0	0
Daviess	3	3	115	0	0
Warren	2	2	12	0	0
Hancock	1	0	0	1	0
McLean	1	0	0	1	0
Johnson-Magoffin	3	2	8	1	0
Wolfe	1	1	5	0	0
Estill	1	1	5	0	0
Wayne	1	1	3	0	0
Total	21	16	493	5	0
Last week	16	9	298	6	1
Difference	5	7	195	1	1

In Tennessee, there were 13 completions, 4 producers with an initial production of 125 bbls., 7 dry holes and 2 gas wells. These wells were by counties as follows: Clay, 9 completions, 3 producers with an initial of 105 bbls., 4 dry holes and 2 gas wells; Overton, 1 dry

(Continued on Page 202)

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TREATING cracked gasoline by passing it in the vapor phase through Gray Towers yields a stable, water-white motor fuel.

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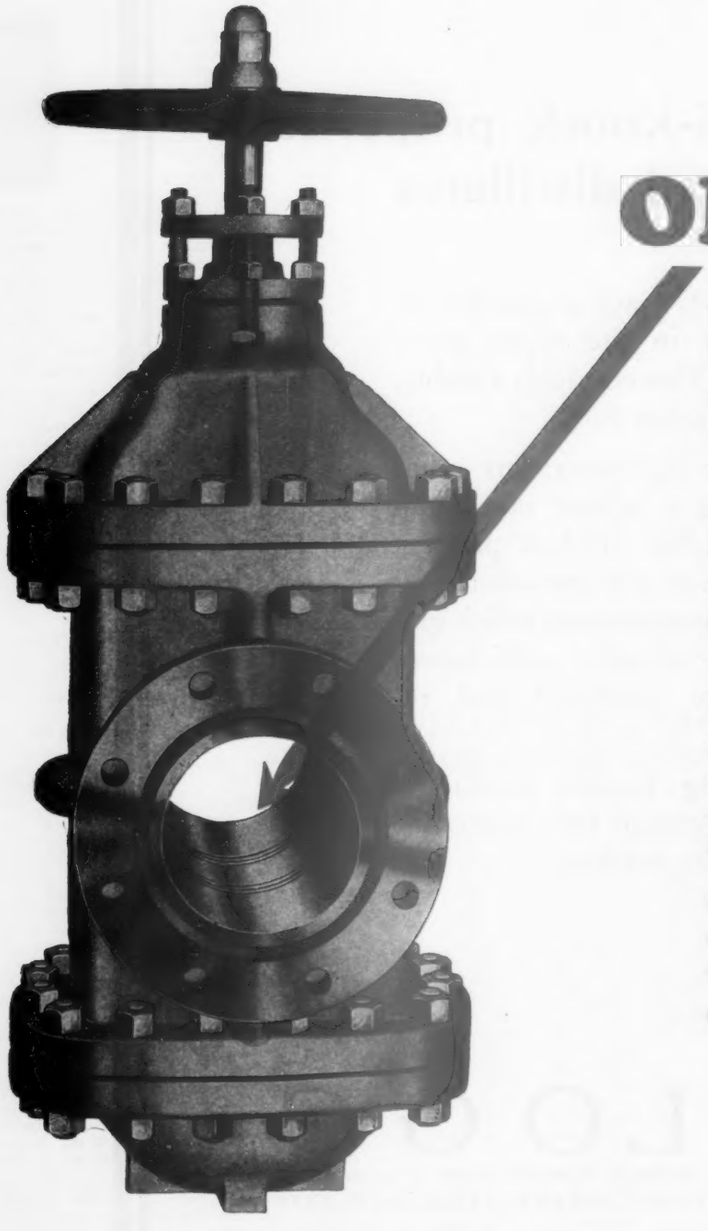

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EQUIPMENT AND SUPPLIES

JAMES D. TEW PLACED IN CHARGE OF SALES

In addition to his position as first vice president of the B. F. Goodrich Rubber Co., James D. Tew has been placed in entire charge of all sales divisions of the company. His title will be first vice president and general sales manager. Long recognized as an expert on

James D. Tew

rubber manufacturing, Mr. Tew in recent years has taken an active part in the selling and merchandising programs of the company.

Mr. Tew began in the Goodrich factory, Akron, Ohio, in 1906. Twelve years later he was superintendent of the tire division of the entire plant. In 1925 he was made assistant works manager and a year later he was advanced to works manager. Soon afterward he was elected to the board of directors and in October, 1927, he was elected first vice president. Mr. Tew graduated from Harvard with the degree of Bachelor of Science in Mining.

AIRPLANE IS USED FOR EMERGENCY SHIPMENTS

Joseph T. Ryerson & Son, Inc., pride themselves on making quick shipments of steel from their eight plants throughout the country.

Recently a shaft was rushed to a manufacturer in a small town 170 miles away. The next fast express did not stop at this town, so a porter was persuaded to roll the the piece off just as his car passed the station. The manufacturer was wired to be on hand. The steel tumbled off as planned and a costly shutdown was averted.

One of the big stripping shovels of the Pyramid Coal Corp., Herrin, Ill., broke down about noon on a Saturday. The engineers listed the material needed — plates, structurals, rivets, etc. — and phoned the order (about 4 p.m.) to the Ryerson St. Louis plant. The material was out to size and assembled Saturday night. A special truck left with the material on Sunday morning and ran all day on the 125-mile trip over snow-covered roads, arriving at the mine at 7 p.m.

In the meantime, the repair crew was at work dismantling the shovel so that it was ready for the new material when the truck arrived, and Monday morning the men were able to go ahead at full capacity.

Now comes the story of the Iowa City (Iowa) Iron Works, which wired for 5 pounds of 7-pound rivets. It was late afternoon and the rivets were needed at once. The order was made up in a few minutes, rushed to the American Railway Express and was at the express company's air station in time to catch the 7:50 airplane express. An hour and 50 minutes later the airplane landed in Iowa City — 236 miles distant. The rivets were thrown out and in use that night.

This was a comparatively small load, but the Ryerson company explains that if it had been a shaft or a beam it would have been shipped with the same speed if the emergency required it.

MANUFACTURE OF ALFIT WILL BEGIN HERE SOON

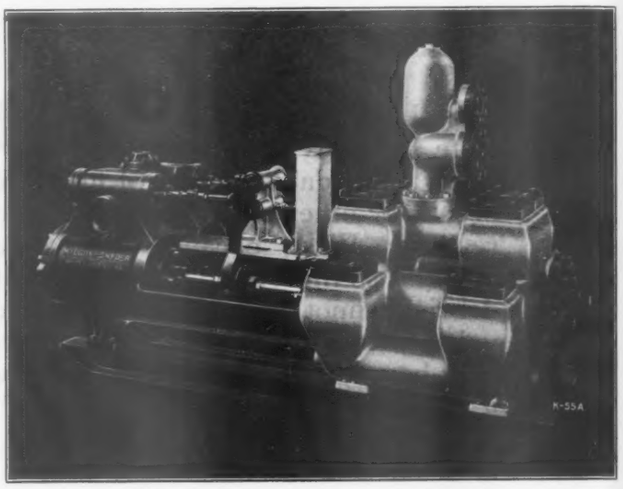
"Alfit," a packing material now imported from Germany, will be made in this country, beginning next month. This substance, described as doughlike and all-metallic, was developed in Germany 14 years ago and is said to have been used with satisfactory results in oil fields and refineries in that country. It was introduced in the United States a year ago. Three types of the material are produced. No. 1 is for low-pressure steam, cold and hot water, and No. 2 is for superheated steam. No. 3 is for acids, chemicals, gasoline, hot and cold oil and tar.

ENGINE BUILT FOR OIL FIELD

A new type of gas engine power manufactured by the Buda Co., Harvey, Ill., is a 6-cylinder unit designed and specially built for oil field needs. Either gasoline or natural gas may be used and the engine is adapted for operating compressors, gas and air lifts and other heavy continuous-duty equipment. According to the manufacturer, savings are made in first costs, freight and hauling, setting up, operating and upkeep.

WILSON-SNYDER SLUSH PUMP HAS NEW DESIGN

Wilson-Snyder Manufacturing Co. of Pittsburgh developed and put into successful operation at Seminole its No. 18 long-stroke slush pump, size 14-inch by 7-inch by 18-inch stroke. The long stroke, while always standard in Wilson-Snyder heavy duty pumps, was a new feature in the rotary drilling field. The fewer reversals necessary with this long-stroke pump when handling the required volume of mud against high pressures made a noticeable reduction in the wear on pump parts.



The direct flow open type design of fluid end prevented unnecessary wear and wasted energy. The balanced piston steam valves, a standard feature of Wilson-Snyder steam pumps, was another new contribution to slush pump design. The piston steam valve being balanced, stays tight at all steam pressures. No drag is encountered and full throttle pressure is expended on the working pistons.

Automatic lubrication was introduced, assuring a continuous supply of oil.

The construction of the Wilson-Snyder slush pump consists of two principal castings so that there is only one bolted connection. Central strain is counteracted by the use of six pump feet, four under the discharge end and two under the steam end, all bolted to steel "H" beam skids. Suction is part of the fluid end casting so that no bolted joint may cause annoyance at this point. The air chamber, strainer chamber and discharge are one casting.

Wilson-Snyder slush pumps are made in two sizes, No. 18, size 14-inch by 7-inch by 18-inch stroke, and No. 16, size 12-inch by 6-inch by 16-inch stroke.

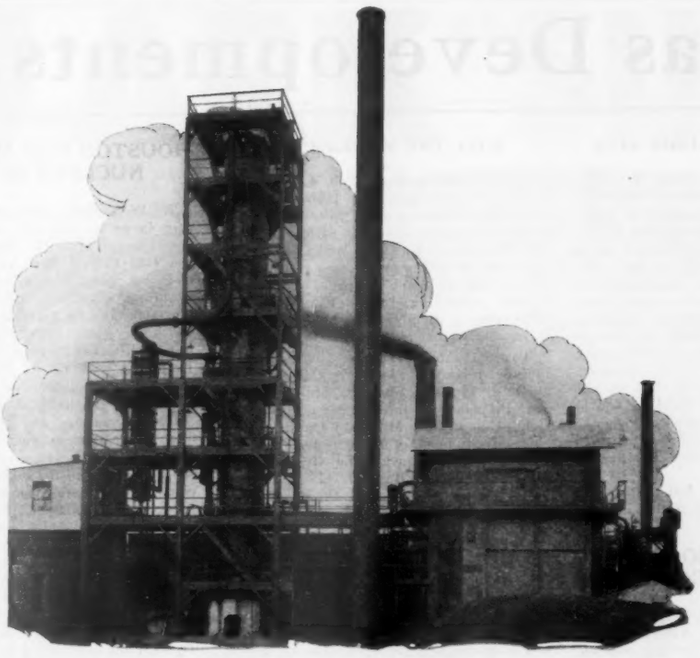
TRADE LITERATURE RECEIVED

Type XOB compressors for oil well pumping are described and pictured in a catalog sent out by the Ingersoll-Rand Co., New York.

The General Electric Co., Schenectady, N. Y., sends a folder devoted to the Atomic Hydrogen arc welding equipment.

BUTLER MANUFACTURING CO. HOLDS ANNUAL SALES SCHOOL

Officials and representatives of the Butler Manufacturing Co., of Kansas City, Mo., and Minneapolis, Minn., recently held their fifteenth annual divisional sales school, designed to get the men together in a business conference where ideas may be exchanged. Improved salesmanship is the primary object. The school was closed with a banquet, attended by 125 Butler men. E. E. Norquist, president and general manager (in the center of the front row holding a piece of paper), was toastmaster. C. C. Crouch, vice president and manager of the Minneapolis office, was leader of the entertainment. A quartet consisting of Mr. Crouch, Delmer King, Earl Van Buskirk, representatives of the company in the eastern part of Kansas and southeastern Nebraska, and F. A. McAllister, representative in Texas, sang. To Mr. Norquist's left sits W. A. Knapp, vice president in charge of sales.



Complete distillation and fractionation *in a single unit*

THE Foster Tube Still and Fractionating Tower, operating as a single unit, provides greater efficiency, flexibility, simplicity, and ease of control of refinery operations than are yet obtainable in any other unit or combination of refinery equipment.

These Foster units will receive any grade of preheated charge without preliminary flashing, and will deliver distillates accurately to specification, without the necessity of rerunning.

The complications of synchronized temperature control and pumping operations which are met in the continuous still and multiple tower systems are eliminated by the Foster Distillation and Fractionation units, and the special construction details of this apparatus assure maximum effectiveness of heat transfer and maintenance of high efficiency.

FOSTER WHEELER CORP.
165 Broadway, New York
Branches in all oil centers.

Foreign Associates:
POWER SPECIALTY COMPANY, Ltd.
Aldwych House, Aldwych WC 2, London, England

FOSTER WHEELER

FRACTIONATING TOWERS HEAT EXCHANGERS
STEAM JET AIR PUMPS SUPERHEATERS
TUBE STILLS VACUUM PUMPS
WATER COOLED FURNACE SURFACES
BRASS AND COPPER TUBING AND PIPE

AERO UNIT COAL PULVERIZERS
AIR HEATERS CENTRIFUGAL PUMPS
CONDENSERS COOLING TOWERS
ECONOMIZERS EVAPORATORS
EXPANSION JOINTS FEED WATER HEATERS

Natural Gas Developments

MANUFACTURERS SECTION OF A.G.A. REORGANIZED

At a recent meeting of the Manufacturers Section of the American Gas Association held in New York, there was proposed a plan, which if carried through, will tie the various manufacturers much closer to the A. G. A. and hence, to the industry, and also give the manufacturers a more complete conception of the gas companies' interests and requirements.

The plan calls for the organization of a conference composed of delegates from each group of manufacturers engaged in the same line of business. The chairman of the Manufacturers Section of the A. G. A. will call the delegates together not less than four times a year, and as many more times as may be expedient. It is proposed that the conference be held at any point in the country which may be selected. They will be under the auspices of the Manufacturers Section of the American Gas Association, and the chairman of this section will preside. Any paper work, reports, or other necessary data can be compiled either by the Manufacturers Section or by outside agencies, as may seem best. These delegates to the conference will represent their specific group, which in turn will be made up of manufacturer companies, in each line, such as range manufacturers, meter manufacturers, etc. The chairman of the Manufacturers Section will select a chairman of each of the groups which are not at present organized, and these men will organize their groups for the selection and instruction of delegates to the conferences. In this way each group will have the privilege of selecting its own delegates.

As the managing committee of the Manufacturers Section is the party under whose auspices these conferences will be held, the personnel of the managing committee will be members of the conference ex-officio and the general conduct of the conferences will be held under its jurisdiction, presided over by its chairman.

Leading men interested in the gas industry will address the companies. It is felt that by bringing together leaders in the various groups into one meeting to consider the various aspects of the industry together, the position of the manufacturers will be strengthened and the results of such deliberations will come before the executive board of the American Gas Association with a much stronger backing than such problems have been presented in the past.

EASTERN TEXAS LINES NEARING COMPLETION

Construction of various distributing systems, being installed by Dixie Gas & Utilities Co. subsidiaries, in eastern Texas, to furnish natural gas for domestic and industrial use, is nearly completed. Local distributing system in Orange is completed, while transmission line connecting this system with the main line of the Dixie Gulf Gas Co. is 88 per cent completed. In Nacogdoches the distributing system is 65 per cent completed, while in Jacksonville it is 99 per cent. Henderson distributing system is 95 per cent complete, while Rusk and Carthage are 65 per cent and 60 per cent completed, respectively.

It is estimated that all the new systems will be completed by February 15 and all the cities and towns receiving gas by March 1, 1928.

MANAGER AT EL DORADO, ARK.

Peter Lake, of El Dorado, Ark., has been made manager of the Ouachita Natural Gas Co.'s affairs there.

LONE STAR-CHICKASHA LINE

CHICKASHA, Okla., Feb. 4. — The Lone Star Gas Co.'s plans to construct a 16-inch gas pipe line through the southeast Grady area will also tap the Chickasha gas field, sometimes referred to as the Norge Field, southwest of this city. The surveying crew has completed its work and materials are to be moved soon. The line will start from the southern end of the Chickasha Field, go directly east to Section 17-4n-6w, in which area several gas wells have been completed, and will then run southeast, through the heart of the oil and gas field of southeastern Grady. It will connect with the Lone Star mains at Pernell in Garvin County. The line is to be 41 miles in length.

This line will give the Lone Star two lines into the main gas field in this county.

NATURAL GAS PROGRAM OPEN FOR SUGGESTIONS

DALLAS, Tex., Feb. 4.—The Natural Gas Department of the American Gas Association will hold its annual convention and exhibition at the Texas fairgrounds in this city May 7, 8, 9 and 10. The exhibition will be in the Manufacturers Building, and the meetings will be held in the Fair Park Auditorium.

A record-breaking meeting and exhibition are expected, according to the convention call issued by N. C. McGowen, of Shreveport, La., chairman of the Natural Gas Department. This is the first annual meeting of the natural gas men since the recent amalgamation with the American Gas Association.

The exhibition committee, through its chairman, H. L. Montgomery, of Bartlesville, Okla., has announced that more space will be available for exhibits than in the past, and that present indications point to not only a larger number of exhibitors, but also a much larger amount of space occupied by the manufacturers. The members of the exhibition committee, with Mr. Montgomery, are: C. C. Cartwright, Fort Worth, Tex.; T. C. Clifford, Pittsburgh, Pa.; H. N. Greis, Tulsa, Okla.; E. F. Schmidt, Dallas, Tex.; and H. L. Whitelaw, New York City.

The committee on papers, under the chairmanship of L. K. Langdon, Cincinnati, Ohio, has asked all natural gas men to submit their suggestions for the program of the meeting. Every natural gas man is being urged to suggest topics and speakers. The other members of this committee are John H. Maxon, Muncie, Ind., and Frank L. Chase, Dallas, Tex.

The committee on arrangements consists of H. C. Morris, Dallas, Tex., chairman; Fred M. Lege, Jr., Dallas, Tex., and Charles B. McKinney, Houston, Tex.

OHIO VALLEY GAS CORP.

P. W. Chapman & Co., Inc., have underwritten $1,800,000 first mortgage 6½ per cent sinking fund bonds of Ohio Valley Gas Corp., organized in West Virginia to own and operate natural gas properties and to supply gas under long-term contract to the Hope Natural Gas Co., one of the largest natural gas pipe line companies in the United States. The corporation, through the subsidiaries, Mid-East Gas Co. and the Zane Gas Co., will own and operate an extensive natural gas pipe line and producing system in Ohio, serving a number of large industrial consumers in Zanesville.

MOODY-SEAGRAVES CHARTER

SHREVEPORT, La., Jan. 4.—The Moody-Seagraves Gas Co., Inc., has filed charter with the district clerk, capitalized at $100,000. O. R. Seagraves is president, W. L. Moody, III, vice president and treasurer, and B. A. Hardy, vice president.

WILL USE WASKOM GAS

JEFFERSON, Tex., Feb. 4.—Work of laying a main gas line from Waskom, near the Louisiana line, to a point near Sulphur Springs to supply all towns along the Louisiana Railway and Navigation Railroad between these two points will be started as soon as pipe can be obtained, according to P. E. Hussey of Jefferson, a member of the firm which is promoting the gas project.

Towns to be served by the main line include Jefferson, Avinger, Cason, Daingerfield, Hughes Springs, Mount Pleasant, Pittsburg, Gilmer and possibly Winfield, Como, and Mount Vernon. Franchises from most of these towns have already been obtained. The firm is composed of George Bussart, G. H. Beach, of Wichita, Kans., and P. E. Hussey, of Jefferson.

COMPETITIVE FRANCHISE BEGUN IN SHREVEPORT

SHREVEPORT, La., Feb. 4.—Public Utilities Corp. of Arkansas, validity of whose competitive franchise to supply gas to domestic and industrial consumers in El Dorado, Ark., was recently confirmed by the courts, has begun construction of a distributing system to reach every section of the city in competition with the Ouachita Natural Gas Co., which recently bought the El Dorado Gas Co.

The franchise was granted the Public Utilities Corp. a year ago after a series of differences with the El Dorado Gas Co. which found their way into the courts and has a 25-year life. Construction of mains in the business and industrial sections was begun immediately and completed and gas furnished these consumers since last September and from last November to January 1, according to a statement from the company's office, it also delivered gas to the El Dorado Gas Co. at the city gates in addition to serving its own customers. This was because the Louisiana-Arkansas Pipe Line Co.'s line in which El Dorado Gas Co. and Ouachita Natural Gas Co. were interested, had not been completed. The latter now owns the line in toto.

With a one-time immense gas reserve at its door, El Dorado, as well as Camden and Smackover, is now dependent upon Monroe and Richland Fields in Louisiana for its fuel, for Smackover gas is so depleted it can not meet the demand.

MAY EXPORT GAS TO MEXICO

SAN ANTONIO, Tex., Feb. 4.—C. O. Maddox, formerly in charge of the Laredo district work of the Simms Oil Co. and more recently an independent operator, has closed a deal for the merger of 300,000 acres of gas territory in the Mirando district and with a developed gas supply of 700,000,000 feet daily open flow. While it is not officially announced what disposition will be made of the gas it is understood the Border Gas Co. which supplies Laredo with gas will take some of the supply, and it is said a gas pipe line may be laid across the river into Mexico to Monterrey, a distance of approximately 150 miles. Monterrey is nearly due south from Laredo and has large industries that would be large consumers of natural gas.

GAS FOR HEARNE, TEX.

HEARNE, Tex., Feb. 4.—The franchise which the city of Hearne has granted the Community Gas Co. completes arrangements by which supplying Hearne with natural gas will be started. R. B. Steger and C. L. Slover, representatives of the gas company, have been in conference with the city officials.

HOUSTON GAS MERGER NUCLEUS OF GREATER?

NEW YORK, Feb. 4.—The formation of a large natural gas combination, with the Houston Gulf Gas Co. and the Southern Gas Co. of San Antonio as the nucleus of the new company, is looked for within a short time, according to information reaching here. It has been known for some time that interests identified with Ellis L. Phillips, president of the Empire Power Corp., have been engaged in acquiring substantial interests in important Texas natural gas companies.

These holdings are to be merged into one large unit to permit the expansion programs which are necessary to keep up with the demand for main artery pipe line construction and smaller distribution lines, it is believed. As a preliminary starting point in the program, the Southern Gas Co. of San Antonio has been transferred to the Houston Gas Securities Co., the natural gas holding company of the Empire Power System. The Southern Gas Co. has assets of over $7,000,000 and operates under franchises and contracts. It supplies natural gas to the San Antonio Public Service Co., which company redistributes it for industrial and commercial consumption.

The largest holding of the Phillips' interest is the Houston Gulf Gas Co. This company supplies the natural gas requirements of the Houston Gas & Fuel Co., which is controlled by the United Gas & Electric Corp., in turn a subsidiary of the Empire Power Corp. The Houston Gulf Gas Co. has assets amounting to more than $13,000,000. It supplies the bulk of the requirements of the Houston Lighting & Power Co., the Sinclair Refining Co. and the Crown Central Petroleum Corp. It also controls extensive gas areas in south central Texas.

The Houston Gas & Fuel Co., already wholly owned by Empire Power, has assets of more than $8,500,000. It furnishes Houston and its immediate vicinity with natural gas under a franchise which runs for 27 years. The company distributes natural gas only, having discontinued its gas manufacturing units early in 1926.

The total assets of the Phillips' group of natural gas companies is placed at over $30,000,000. The system is constantly being expanded by the construction of interconnecting distribution lines which allow the shifting of the gas load and permits branching out into new territory. The long-distance distribution of gas has entered only its preliminary stages, according to leading utility men, and will, within the next few years, show marked improvement in methods of handling.

GAS SALES IN PHILADELPHIA

Sales of gas in Philadelphia by United Gas Improvement Co. through its subsidiary, the Equitable Illuminating Gas Light Co., in three months ended December 31, 1927, compare as follows (cubic feet):

	1927	1926
Three months ended March 31	5,337,615,960	5,685,075,680
June 30	4,661,474,030	4,791,755,550
Sept. 30	3,717,792,370	3,626,505,880
Dec. 31	4,373,515,740	4,644,658,280
Total year	18,090,398,100	18,747,995,390

Amount due the city on sales for quarter ended December was $1,093,378.

GAS LINE TO PARSONS

The Farout Oil Co. of Craig County, Oklahoma, is laying a 30-mile gas pipe line from the Oklahoma gas fields to Parsons, Kans. Gas will be collected from 50 gas wells in northern Oklahoma, and will be piped to Parsons, where it will be used in the M. K. & T. Railroad shops.

CLARK "SUPER 2"

Combines Lowest Operating Cost with 1/3 Less Fuel Cost~

The CLARK "Super 2" Compressor has won immediate and widespread recognition because it combines 2-cycle simplicity and operating economy with *fuel economy fully equal to that of a 4-cycle plant.*

Simply and powerfully designed, with few parts to demand attention and adjustment, the "Super 2" requires a smaller operating force than a 4-cycle installation.

The unprecedented fuel economy is attributable to our new, patented FUEL INJECTOR, which acts as a real super-charger, furnishing to the cylinder, after it is filled with air, the correct amount of gas under pressure. Because better mixing of air and gas is obtained, with no loss of gas into the exhaust, the "Super 2" operates on *1/3 less gas* than the best 2-cycle engine with the usual suction type feed.

"Super 2" Compressors are now demonstrating their dependability and economy in a multitude of plants. The photograph shows CLARK "Super 2" Twin Compressors in the engine room of Roeser & Pendleton, Inc., and Marland Refining Company Gasoline Plant Number 1, at Shackelford, Texas.

CLARK BROTHERS COMPANY
OLEAN, N. Y.
Branch and Warehouse: 125 W. First St., Tulsa
Warehouses at McCamey and Sweetwater, Texas, and Artesia, N. M.
SMITH BOOTH USHER COMPANY
228 S. Central Ave., Los Angeles 50 Fremont St., San Francisco

CLARK

MEN KNOWN IN OILDOM

Underwood Nazro

Underwood Nazro, who was born in Kentucky and passed his boyhood there, got his first real smell of oil in the adjoining state of West Virginia. He liked it so well he launched an oil enterprise of his own as an independent operator in the Spindletop Field in Texas and then became one of the leading operators in the Southwest. For years, Mr. Nazro has been vice president of three subsidiaries of the Gulf Oil Corporation.

Leaving his native State as a young man, Mr. Nazro gained first-hand knowledge of oil field work in West Virginia, where discoveries of new pools had brought the annual production in 1900 to 16,600,000 barrels. At Spindletop, Mr. Nazro operated a little refinery for a time. Then he established the Unity Oil Company, a producing organization which developed into a successful concern under his management. From this it was an easy step to the vice presidency of the Gulf Production Company, with extensive leases and production in various Gulf Coast areas in Texas; the Gulf Pipe Line Company, which owns and operates lines connecting all important Texas and Louisiana pools with Gulf Refining Company plants in Port Arthur and Fort Worth, Tex.; and the Mexican Gulf Oil Company, which has acreage in fee and under lease in Panuco, Topila and southern fields, a 65-mile pipe line from Tepetate to Tampico, Mexico, and storage and shipping facilities in Tampico.

Mr. Nazro resides in Houston, Tex., with his wife and two children. Like most other oil executives he likes golf and he is credited with playing a fairly good game.

PERSONAL PARAGRAPHS

Harry L. Pew, Lima, Ohio, paid Pittsburgh, Pa., a business visit recently.

* * *

W. G. Skelly, president of the Skelly Oil Company, is in New York on business.

* * *

H. E. Clark, of the Fort Worth offices of the Graver Corporation, was in Shreveport, La., last week.

* * *

H. M. Rosevear, sales engineer of the United Iron Works, Inc., of Kansas City, Mo., was a Tulsa visitor last week.

* * *

J. J. McGraw, president of the Exchange National Bank of Tulsa, Okla., has been in New York City for three weeks.

* * *

A. W. Thompson, sales manager of the Westcott Valve Company, is making a trip through the Gulf Coast fields.

* * *

E. M. Welch, New York City, shipping agent for the Northern Group of Pipe Lines, was a Pittsburgh, Pa., visitor recently.

C. L. McMahon, independent oil producer of Tulsa, Okla., has returned from a trip of inspection through the Texas fields.

* * *

William Law, of the DeSoto Foundry & Machine Company of Mansfield, La., is temporarily located in Tulsa, Okla.

* * *

William G. von Gemmingen, engineer of G. E. Barrett & Company of New York, was a visitor last week in Tulsa, Okla.

* * *

S. R. Shoup of Los Angeles, Calif., general sales manager of the Joseph Reid Gas Engine Company, is in Oil City, Pa., on business.

* * *

B. H. Barnes, district sales manager of the Regan Sales Company with headquarters at Houston, Tex., spent a few days in Tulsa last week.

* * *

Dilworth S. Hager, chief geologist of the Vacuum Oil Company, has resigned, effective March 1, in order to enter the oil business for himself in Texas.

* * *

Daniel J. Burns, prominent drilling contractor of Bartlesville, Okla., has returned after spending a week in New York, Washington and Pittsburgh on business.

* * *

President E. B. Siens of the Brownmoor Oil Company, has just returned to Los Angeles following an inspection tour along the west front of the Kern River Field.

* * *

H. D. Easton, independent geologist, of Shreveport, La., is spending some time in western Tennessee where he is engaged on a rather extensive investigation for some clients.

* * *

George A. Manahan, drilling contractor, who formerly made his headquarters at Ponca City, Okla., has removed his offices to the Exchange National Bank Building, Tulsa, Okla.

* * *

Joe T. King, president of the Kingwood Oil Company of Okmulgee, Okla., has returned from a trip to the north central Texas fields, where his company has been operating.

* * *

Jack Hesterly, head of the scouting department of the Louisiana Oil Refining Corporation has returned to Shreveport from a two weeks' trip through the Panhandle and West Texas Fields.

* * *

Dr. Charles N. Gould, state geologist of Oklahoma, with headquarters at Norman, Okla., spent a few days recently at Tulsa, visiting members of the geological profession, and other oil executives.

* * *

W. F. Lewis, formerly assistant to the district sales manager of the Union Oil Company in San Francisco, has just been appointed manager of refined oil sales with headquarters in Los Angeles.

* * *

J. J. Wirt of the Standard Oil Company, with offices in Bakersfield, Calif., was recently appointed chairman of a committee to co-operate with and advance bona fide development of oil and mining projects in Kern County.

* * *

Joseph E. Tracey, for the past few years city salesman in Great Falls, Mont., for the Continental Oil Company, has gone to Denver, Colo., to become assistant advertising manager for the company at its headquarters in that city.

* * *

O. J. Tuttle, sales manager of the refinery division of the Empire Oil & Refining Company has returned from a 10-days' trip through the northern and eastern states, where the company sells a considerable volume of its products.

* * *

H. R. Straight, vice president and general manager of the Empire Gas & Fuel Company is making a trip of inspection over the properties of the Mexican branch of his company, and will be gone from his office at Bartlesville, Okla., for four weeks.

* * *

C. R. Mazey, former state oil and gas well supervisor of Montana, has returned to Great Falls from Rochester, Minn., where he has been for six weeks. He has been incapacitated since early last year by a form of meningitis which for a time threatened to deprive him of the use of his legs. He is much improved.

H. F. Miller, representative of the Standard Oil Company of New Jersey in charge of gasoline purchases in the West, is in Los Angeles, Calif., for a three weeks' visit after which he will return to his headquarters at Tulsa.

* * *

R. M. Young, president of the Carter Oil Company, accompanied by George H. Lang, chief scout of the company, are in New York for one of their periodical visits with the officials of the Standard Oil Company of New Jersey.

* * *

John Fertig, of Denver, Colo., vice president and general manager of the Producers & Refiners Corporation, with R. E. Wertz, general superintendent, were in Tulsa, Okla., during the week. They were joined by O. O. Holmgreen, treasurer, at Tulsa.

* * *

E. J. Sullivan, president of the E. T. Williams Oil Company, has left Casper, Wyo., for Cheyenne to join H. P. Hynds of the Hynds Oil Company for a trip to Laramie and other points in southwestern Wyoming on business connected with both companies.

* * *

H. L. Baldwin, geologist for the Quinby Oil Company at Fort Stockton, Tex., has been dismissed from the San Angelo hospital after treatment for his left eye, rendered sightless recently when a splinter penetrated the pupil. It is thought the ball of his eye will be saved.

* * *

Charles S. Franklin, assistant geologist of the Associated Oil Company in the Kern River, Calif., fields, and P. S. Stark of the Honolulu Consolidated Oil Company at Taft are recovering from injuries received when Mr. Franklin's airplane took a nose dive over the Taft airport.

* * *

H. H. Hannah, auditor of general accounts for the Union Oil Company of California, is leaving for Sydney, Australia, within the next week or 10 days to become chief accountant of the Atlantic-Union Oil Company, a subsidiary of the Union Oil Company and Atlantic Refining Company.

* * *

Dr. Edward A. Hill, petroleum geologist who is interested in the Cedar Key well at Cedar Key, Fla., and the Rhodes well, 10 miles south of Tallahassee, Fla., is conducting several surveys at West Point, Miss., a distance of 30 miles southwest of the Rye gasser of Monroe County, Mississippi.

* * *

A. E. Forester of the Tool Steel Gear & Pinion Company of Cincinnati, Ohio, is making an extended trip through the oil fields of the Mid-Continent investigating the market in the petroleum industry for speed reducers, steel gears and other high grade steel products manufactured by his company.

* * *

George Rossman, of Franklin, Pa., one of the service engineers of the Franklin Valveless Engine Company, has left Casper, Wyo., for Amarillo, Tex., where he will spend a few weeks. Mr. Rossman has been dividing his time between the oil fields in Wyoming and West Texas for the past year.

* * *

At the annual meeting of the Eureka Pipe Line Company, held at Oil City, Pa., John J. Kenney, Pittsburgh, Pa., was elected assistant to the general manager. E. W. Mecklin, Parkersburg, W. Va., was elected general superintendent and F. M. Kent, Parkersburg, W. Va., assistant superintendent.

* * *

Col. T. H. Barton, of El Dorado, president of the Public Utilities Company of Arkansas, and the Natural Gas & Fuel Corporation, another Cities Service Company subsidiary, has returned to El Dorado from New York, where he was called on a mission in connection with the recent purchase of the Arkansas Natural Gas Company and the Arkansas Fuel Oil Company by the Doherty interests

* * *

Capt. John Tonkin, one of the oldest oil and gas men in the Eastern region, has retired from service, having resigned as president of the Central Kentucky Natural Gas Company, which position he has held for years. He was in the Confederate army, under Gen. E. Kirby Smith, in the Kentucky campaigns. He became associated with the oil and gas industry in 1866 in Pennsylvania, New York, Kentucky and Ohio fields.

"OILWELL"
IMPERIAL STUFFING BOX
MODEL "C"

The Model "C" Stuffing Box is designed to permit pulling sucker rods and valves (as well as running a sucker rod socket) directly through the box without removing the stuffing box from the tubing. This feature eliminates the use of the sucker rod guide or bell nipple.

Patent Pending

When sucker rods are to be pulled, it is only necessary to turn the packing head to the left until the tension on the rubber packing rings is relieved. Then the oil reservoir automatically unlocks and permits the withdrawing of the packing parts of the box on the polish rod. Any tool that will pass through the tubing will pass freely through the stuffing box.

The oil reservoir holds approximately one-half pint of grease or oil, and the upper babbitt gland is detachably connected to the oil reservoir by means of a dove-tail arrangement and can be easily moved up on the polish rod to add additional rubber packing rings to the box.

The top of the stuffing box is flat, offering a solid seat for the elevators when pulling sucker rods.

Inquire at Any of Our 100 Branches

OIL WELL SUPPLY CO.

NEW YORK—LOS ANGELES—PITTSBURGH, U.S.A.—SAN FRANCISCO—TAMPICO—LONDON

WORLD'S OLDEST AND LARGEST MANUFACTURERS OF OIL FIELD EQUIPMENT

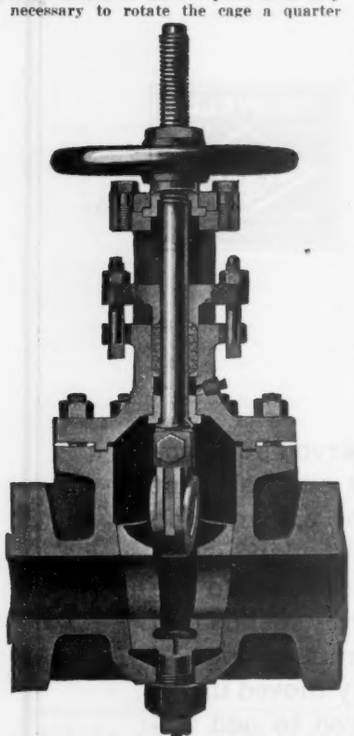
EQUIPMENT AND SUPPLIES

VALVE DESIGNED FOR HIGH-PRESSURE USES

A new type of valve developed by the Wellman-Seaver-Morgan Co., engineers and manufacturers of Cleveland, Ohio, is being marketed under the trade name of "Wellman Supertest Valve."

The valve seats are an integral part of a slightly tapered removable valve cage, and the valve cage itself has an external take-up adjustment to compenstate for expansion or contraction and prevent leakage between the walls of the cage and the main valve body.

The valve cage may be utilized to shut off the flow through the valve while repairs or adjustments are being made, eliminating the necessity of taking the entire valve body out of the line. When it is desired to make repairs it is only necessary to rotate the cage a quarter



turn to prevent the passage of fluid through the valve and permit the removal of the internal parts if desired.

The valve cage has guides corresponding with slots in the wedge-type gate, which control the path of travel of the gate and prevent rubbing of the surfaces of the gate and seat.

The valve cage exteriorly is circular in cross section permitting it to be rotated into position or given a quarter turn to shut off the flow during repairs. The valve seats are flat, permitting the closing of the valve under high pressure, at the same time allowing the valve to be easily opened.

The whole arrangement is such that the valve surfaces are released from the seat at the slightest movement of the valve stem on account of the wedge shape with its center guides which practically eliminates any sliding action. This avoids both wear and the wedging of the valve faces against the valve seats which would make difficult the opening of the valve.

The Wellman valves are made in both the gate and globe types to meet the requirements of the highest temperatures and pressure used in modern steam plants, oil refineries, pipe lines and in hydraulic, air and gas lines in the various process industries.

TWO BUCKEYE MACHINES ADAPTED FOR OIL WORK

The Buckeye Traction Ditcher Co., Findlay, Ohio, has perfected two new machines adapted for oil field work. Model 15, the latest and smallest Buckeye pipe line excavator, was developed especially for small trench excavation. It works in narrow or restricted quarters where big excavators are unsuitable. It digs trenches either 11½ or 14½ inches wide by 4½ feet deep, or 11½ inches wide by 5½ feet deep. Its weight is approximately 6 tons.

Model "O" Buckeye is a light-weight, fast-working, low-cost full-revolving crane. It meets the growing demand for smaller portable units of power-driven, labor-saving equipment. It handles miscellaneous pipe line construction material. It can be used as a trench backfiller or for any service within the limits of a light-duty hoisting apparatus. All controls are within easy reach of the operator, who always faces the work. Model "O" travels, and is easily controlled, with the boom rotated in any direction. Pipe line constructors find this of assistance in lifting and maneuvering welded pipe sections into the ditch.

COMBINATION SOCKET OFFERED

The Brust Tool Manufacturing Co., El Dorado, Ark., is offering the Brust Combination Socket, which, according to the company, catches various sizes of rods and tubing in fishing jobs without changing slips, each socket being equipped with four slips and overshot dog. The manufacturers say this socket has these advantages: Slips have a 1¼-inch opening, fit any place, are straight on the back side and never come in contact with the bowl; bowl will not swell, slips do not get lost or break.

THOMPSON AND LANEY DISSOLVE PARTNERSHIP

The Safety Pulling Machine Co., Independence, Kans., incorporated 14 years ago by Charles H. Overly, W. W. Curtin, Thomas G. Laney and Owen Alonzo Thompson, has passed into the ownership of Mr. Thompson through the withdrawal of the last of his associates, Mr. Laney.

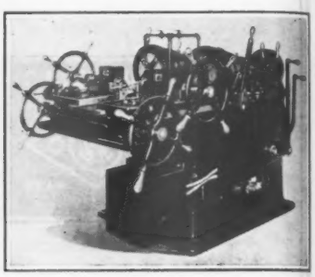
Owen Alonzo Thompson

One year after the corporation was established in 1914 Mr. Overly sold out his interest to the three others. In 1916 Mr. Curtin followed Overly's example. In 1919 the corporation was dissolved and a copartnership was formed by Mr. Thompson and Mr. Laney. Mr. Laney's retirement from this partnership leaves Mr. Thompson sole owner. The concern manufactures the Eclipse Deepwell pulling machine. The old company name will be retained.

BOLT-THREADER WITH 2 HEADS EFFECTS SAVING

To meet the demands for faster bolt-threading production at a lower operating cost, the Williams Tool Corp. of Erie, Pa., has started quantity production on a new double-geared-head bolt-threading machine.

While having all of the improvements of the Williams "Rapiduction" bolt-threading machine with single head, the new double-head threader gives a wider range of production, cutting three-eighths inch to 1½-inch threads with the 1½-



inch size machine; and one-half inch to 2-inch with the 2-inch size machine. This enables the operator, in cutting long threads, to work two set-ups at the same time. Another important saving is in the set-up time, when two different sizes are being run through with frequent change from one size to another.

The operator has complete control from either side of the machine. For each of the die heads the operator can select any one of eight spindle heads. This gives him the machine's maximum production on each size bolt being threaded, as he can select the right speed for that size bolt.

Modern machine tool design has been followed in mounting the electric motor in the base of the machine out of the way of the chips and dirt, entirely encased. The motor is provided with an adjustable base, enabling the operator to keep the driving chain tight at all times by simple quick adjustment. This means uniform pull of power.

OPENS DIVISION OFFICE

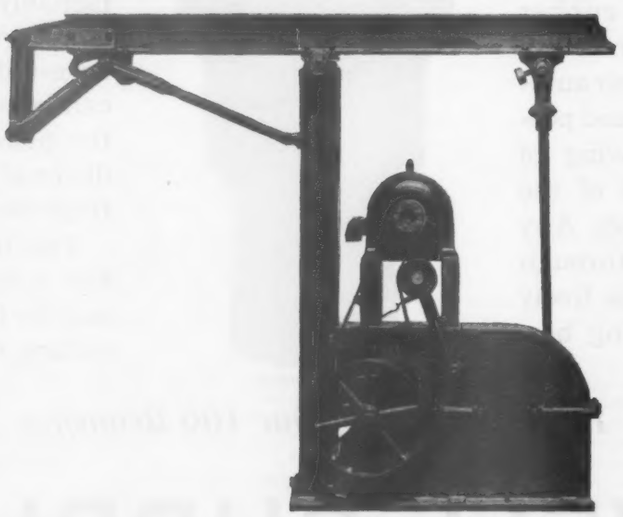
FORT WORTH, Tex., Feb. 4.—The Parkersburg Rig & Reel Co. has opened a division office in Fort Worth to handle the North Texas, Panhandle and Mexia districts and West Texas. The office will be in charge of P. L. Brooks with H. L. Brock as chief clerk. Both are formerly of Houston, Tex. H. L. Monks, formerly foreign representative of the company and who recently returned from an extensive tour of foreign fields, will be in charge of city sales in Dallas and Fort Worth.

BUSINESS NOTES

"Ace" Bland, formerly manager of the Oil Well Supply Co. store in El Dorado, Ark., has resigned to become representative of the Dunn Manufacturing Co., Oxnard, Calif., in the Gulf Coast, Louisiana and Arkansas territory.

The Equitable Equipment Co., New Orleans, La., has been made sales and service representative of the Climax Engineering Co., Clinton, Iowa, in the territory embracing lower Louisiana and Mississippi.

NEW PUMPING UNIT DEVELOPED BY STORK COMPANY



The Stork Engineering Co. is introducing a new unit for pumping oil wells, developed through experimentation in the Saginaw Field. A more solid and rigid pumping power was the engineering problem to be solved.

The walking beam can be taken off by taking out four bolts and one pin. The patented polish-rod alignment cam keeps the polish rod in perfect alignment. Lubrication is done automatically by pouring five gallons of oil in the base.

The gears are cut and pinions are hardened. All gears are pressed on shafts with keys. Bearings are bronze and interchangeable. The running parts of this complete power are interchangeable. If new bearings are to be replaced they can be inserted by opening the base.

Toggles that are hooked upon the walking beam to carry the polish rod are made of steel casting.

Banroc Insulation *Never* Becomes Obsolete!

It doesn't make any difference how many changes you make in your refinery equipment, Banroc Insulation can always be removed from the old equipment and replaced on the new with 100% salvage.

Perhaps no other industry is as progressive in improving its equipment as the refinery. Equipment that is the last word today, may be obsolete and set aside to make room for newer developments in a few years.

So in choosing insulation, consider the ease with which Banroc can be removed and replaced—salvaged without loss of material, or any of its high qualities.

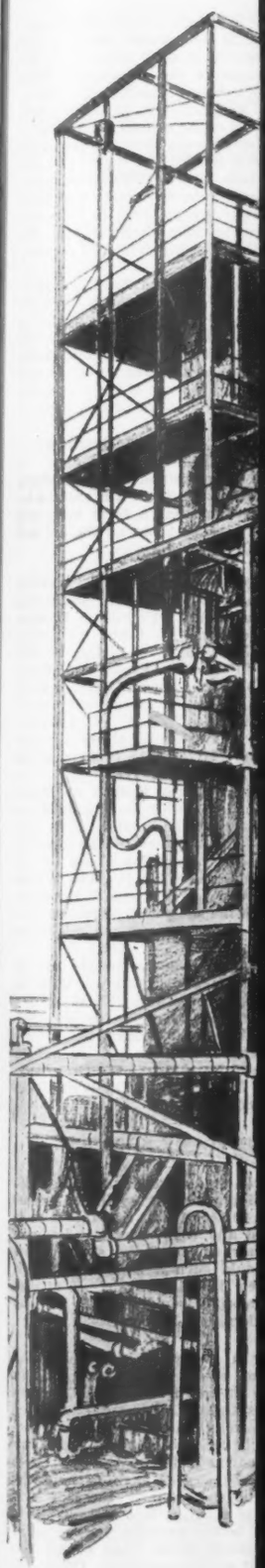
Banroc No. 65—

Pipe Insulation was developed especially for the refinery to fill the need for a permanent, fireproof, weatherproof insulation that can be removed from one piece of equipment and replaced on another. Made of the famous Banroc Wool, encased in 24 gauge galvanized iron. Applied by simply slipping around the pipe and bolting on.

Banroc H. T. W.

Banroc High Temperature Waterproofing Cement is a special compound developed to give a waterproof insulating cement for finishing high temperature refinery equipment. It consists of a special Banroc Cement to which is added Banroc Waterproofing compound. It does not crack or peal off. It is also fireproof, thus eliminating the possibility of flash fires.

BANROC INSULATION



ORIGINATORS OF ROCK WOOL PRODUCTS

BANNER ROCK PRODUCTS CO.
Alexandria, Indiana

Field Problems and Their Solution

EDITED BY THOMAS F. SMILEY

In order that men connected with the drilling, producing and transporting branches of the petroleum industry may procure quickly a solution of many problems confronting them from time to time in their work, The Oil and Gas Journal has arranged with leading engineers and other recognized authorities to answer questions submitted by readers of this publication pertaining to the work of drilling and producing crude oil and transporting this product.

Everyone is invited to submit questions freely. These questions will be submitted to proper authorities by Mr. Smiley, who edits the page, and answers, based on the best available information, will be published. Each question should give as much detail as possible, especially where it relates to matters where depths of sands, types of sands and operations on adjoining properties would have a bearing on the problem involved. The source of all questions will be considered as confidential and only initials will be published in connection with the question.

In this connection, The Oil and Gas Journal will be glad to publish articles from field men who have devised new methods or practices which are improvements.

In case an immediate answer is important, one will be given by mail if the writer requests it.

UNCOVERING THE SAND

1. In what way does lowering the pump barrel into the sand and drawing off the casinghead gas affect the ultimate recovery from the sand?

2. Two adjoining leases are in the same sand, which is of a loose character. One lease is tubed low, uncovering part of the sand. The other is tubed high, keeping the sand flooded. Both leases have the same vacuum, about 25 points. What will be the effect in the final recovery from the sand, and which is the better way?—J. B., Jr.

It is now generally recognized that the principal function of gas is to force the oil through the sand and to the wells. To state it more accurately, it is the energy developed by the expanding of the gas which is communicated to the oil, causing the oil to move toward the areas of low pressure, or towards the producing wells. That this must be true is evidenced by the present-day practice of injecting gas or air into a depleted sand whereby the production of oil is increased. In the artificial restoration of pressure in a sand, trouble results from the gas or air bypassing and escaping through certain wells. The remedy for this is to raise the pump barrel or to hold pressure on those wells in which bypassing occurs.

The same condition has been met in fields that are being produced under their natural pressure. In either case, to obtain maximum results, the energy of the gas must be used to its greatest extent in order to recover the maximum quantity of oil. Lowering the pumping barrel below the top of the sand allows for the greatest differential in pressure between the sand and the well and permits the gas to escape into the well through the upper part of the sand. This condition may be checked in actual field operations by observing the gas as it issues from a well. When the well is pumped down the volume of gas is at a maximum, and as the fluid builds up in the well, the gas decreases in volume. One of the largest operating companies in the country has discontinued the practice of drawing off the casinghead gas and keeps the sand covered at all times, as a result of interesting field tests carried on in a number of fields.

Answering your second question, it depends to some extent on the type of oil produced. Uncovering the sand in localities where paraffining occurs, has been known to result in a lower recovery as compared with offset leases where the sand was kept covered at all times. On the other hand, leases on vacuum have been known to produce more oil, down to their economic limit than was obtained from leases on which the sand was kept covered. However, this does not signify that the ultimate economic recovery from the lease on which the sand was uncovered produced as much oil as could have been produced if the sand had been kept covered. It would indicate that gas had been withdrawn from offset leases, thus resulting in a lower ultimate recovery for both leases.

It is believed that the ultimate recovery of oil from a sand is decreased by uncovering the sand and producing under a vacuum. It is now being generally accepted that the sand should be kept covered and that the practice of applying vacuum decreases ultimate recovery.

OBTAINING THE ROCK PRESSURE

Will you please advise us as to the method for basing figures in computing rock pressures? Thank you in advance for your favor.—W. H. C.

From your inquiry, it is rather difficult to determine what information you desire. Possibly a brief definition of the term and an explanation of how rock pressures are obtained, will serve the purpose.

By rock pressure is meant the pressure existing in a sand. This may be due to water pressure or to gas which may be present. In most fields in this country, gas pressure plays a more important part. The term is a misnomer when applied to the shut-in pressure recorded at the well head by means of a gauge. This statement applies to both oil and gas wells.

To obtain the actual rock pressure, several methods may be used. In the case of a gas well, the weight of the column of gas above the producing sand must be added to the shut-in pressure at the well head to obtain the actual rock pressure. In event that water is present in the well, it is necessary to add the recorded shut-in pressure, pressure due to the weight of the column of water standing in the well, and weight of the column of gas above the water.

It might be of interest to you to know that the weight of a column of gas above the sand in a 4,000-foot well is equivalent to approximately 20 pounds. To obtain the true rock pressure in a flowing oil well, add the shut-in pressure, the pressure due to the column of oil standing in the well and the weight of the column of gas above the oil level. In wells that have reached the pumping stage, fluid will rise to a certain height in the wells. The weight of the column of fluid in such cases is a measure of the rock pressure. For example, if the fluid stood 1,500 feet above the sand this would be equivalent to approximately 600 pounds rock pressure.

It is difficult to determine the actual rock-pressure in a flowing well. Engineers for one of the oil companies have devised a method whereby the pressure in the sand may be measured while the well is flowing. An instrument is run down into the well and the pressure is measured direct, at the surface.

TO KEEP CEMENT FROM FREEZING

In laying concrete during cold weather is there any method to use whereby the concrete won't freeze? I have used manure and sawdust to cover the cement, but it isn't always possible to get either of them.—F. I. J.

One practice in pouring cement in cold weather now is to add an accelerator to it to hasten the set. Any one of the accelerators used in oil-well cementing may be employed for the purpose. Calcium chloride is probably one of the cheapest accelerators. The amount required varies with the conditions. It is not good practice to use accelerators when reinforcing is employed because the calcium reacts with the iron. Special kinds of cement are being made now which reach their initial set in a much shorter time than does the ordinary portland cement. For further information on this subject it is suggested that you get in touch with one of the cement companies as they are in position to give you specific data.

WANTS SMALL GASOLINE PLANT

Recently we organized a small local company and drilled a hole to 800 feet. At 647 feet we had a 4-foot gas sand making 100,000 feet of rich wet gas. At 680 we found a sand containing both oil and water, probably a 5-bbl. well if put on the pump. We went on to 800 feet without encountering anything further and were "broke." We plugged back to 667, saving our gas, which we considered the most valuable, as we couldn't afford to put the well on pump. There are a number of sands below 800 feet that will probably produce oil or gas in considerable quantities, but we haven't the funds nor seem able to raise sufficient to drill deeper at this time.

Now, we are wondering whether or not we could erect some sort of plant to make gasoline out of the gas, make a little profit until things open up a bit, or at least get our money back. We want to hold on to our acreage, as it appears very valuable, considering the lower sands, and from a well drilled 2 miles away. This well drilled to 1,800 feet and has 4,000,000 feet of gas, testing 7 quarts, but not so rich as ours. Our well has over 300 pounds rock pressure.

1. Is it possible to erect some sort of plant that will be efficient enough and at the same time be inexpensive that we can make a profit out of our gas? We could make an expenditure for such a plant up to $1,000, which would be about our limit.

2. What sort of plant should we put up? In this connection we have heard of all kinds of plants, the portable, air compressor types, mineral seal oil refinery types, etc., but no one among us nor anyone else here can give us reliable information that is essential before spending our small capital.

3. If the compressor type is preferable, where could we get one and at what price, terms, etc?—L. H. W.

You state that your well is capable of producing 100,000 cubic feet of gas. How did you measure the volume? If this is the open-flow volume, the available volume will be less because it will be necessary to hold back pressure on the well in order to operate a small portable plant without the use of a compressor for boosting the gas. It is suggested that you hold various amounts of back pressure on the well and measure the volumes at these different pressures. This can be accomplished by holding pressure on the well by means of a cooler or heat interchanger, relieving this pressure after the gas leaves the discharge side of the cooler and discharging into an accumulating tank, where the reduction in velocity will allow the condensate, or gasoline, to drop out. The higher the back pressure held, the greater will be the percentage of recovery of gasoline.

The equipment needed for this operation would be a heat exchanger, pressure regulator, accumulator, water circulating pump, and a small cooling tower. The cost of this equipment should not exceed your available capital. You would do well to get in touch with one of the companies manufacturing equipment of this kind.

BOOKS FOR A FARM BOSS

Can you please tell me of a handbook on the practical questions encountered by a production man, say a farm boss, and also a good book or books on the air and gas lift?—C. A. K.

Among books on the market dealing with the subject of petroleum production might be mentioned "Petroleum Production Engineering," by Lester C. Uren; "Deep Well Drilling," by Walter H. Jeffrey, and "Petroleum Production Methods," by John R. Suman. Other publications of value are "Underground Conditions in Oil Fields," by A. W. Ambrose, United States Bureau of Mines Bulletin No. 195, and "Methods of Increasing the Recovery of Oil From Well," by J. O. Lewis, United States Bureau of Mines Bulletin No. 148. Other Bureau of Mines publications would be helpful. It is suggested that you write to the Bartlesville station of the bureau for a list of the publications printed by it. The writer does not know of any small handbook dealing with the subject of petroleum production in such detail as you might desire.

With regard to books on the air or gas lift, it is suggested that you write to Whealton-Townsend, Inc., Tulsa, Okla., Mid-Continent distributors for the Chicago Pneumatic compressors, for a copy of their handbook on the gas lift and to the Ingersoll-Rand Co., 11 Broadway, New York, for a copy of "Oil Well Blowing Handbook."

BENEFITS OF SHOOTING

Where you find a gas sand in the middle Mississippian rocks, say in the Bethel sandstone, 40 feet thick, and the sand is fine-grained and tight, would it improve the gas flow to shoot the sand? How heavily should such a sand be shot, if at all, when drilled through? It strikes me that shooting would increase the gas flow considerably.—W. S. L.

Shooting a gas sand has been practiced to some extent and has been known to increase the gas flow, especially when the sand is tight. The general tendency is to shoot wells too heavily. Good practice would be first to use light shots, say 5 or 10 quarts, and note the effect. It would also be a good plan to hold the shots up in the sand if there is any possibility of shooting into bottom water. It is also better practice to use light shots and shoot oftener than to use too large a shot at the beginning. Of course it must be remembered that each locality offers a separate problem as regards the size shot to use. The above sizes are merely offered as suggestion and it would do no harm to experiment with the lighter shots.

The

Improved Trip Spring Latch Jack

(Forged)

End view of eccentric bottom construction which facilitates engagement.

Reduces—

Breakage of Bailer Bails and other tools caused from irregular jarring.

The Spiral Spring can be adjusted to obtain a rigid hold between the fishing string and the fish or object tool.

When the latch is tripped and thrown into locking position by the semi-elliptic latch spring, the maximum advantage of the fishing jars is thus obtained.

HONEST TOOLS

HINDERLITER

Ready for greater service
AXELL
Axelson
A·P·I·
Sucker Rods
Rather than place A.P.I. Specification Sucker Rods on the market hurriedly the Axelson Organization conducted a series of the most critical tests for months preceding full production. Advanced standards of precision were carefully developed so that every dimension would be perfect and at the same time volume output could be economically assured. Now on full production these Rods are leading the field.
Axelson Machine Company
Los Angeles, P. O. Box 237
THERE IS NO ECONOMICAL SUBSTITUTE FOR QUALITY

WILDCAT OPERATIONS IN OKLAHOMA

(Continued from Page 58)

Roxana Petroleum Corp.'s No. 1 Freelove, SW cor. SW Sec. 17-19-4w ... Drilling 5,754 ft.
Sinclair Oil & Gas Co.'s No. 1 Webber, SE cor. SE Sec. 18-19-4w ... Fishing drill pipe 4,808 ft.
Twin State Oil Co.'s No. 1 Shaffer, NW cor. NW Sec. 20-19-4w ... Drilling 3,665 ft.
Bryan & Emery's No. 1 Scott, C NW SE Sec. 33-19-4w ... Shut down 4,514 ft.
Huckaby & McCoy's No. 1 Perfect, NE cor. NE Sec. 9-18-15w ... Shut down 3,370 ft.
Haley & Smith's No. 1 Guier, SE cor. SW Sec. 33-18-3w ... cleaning out 3,690 ft.
Garber & Pulse's No. 1 Widdoes, NE cor. SE NW Sec. 32-18-3 ... Shut down 1,200 ft.
T. B. Slick's No. 1 Bryan, SW cor. SE Sec. 28-17-1 ... Drilling 5,430 ft.
Wills and others' No. 1 Sweezy, SW cor. NW SE Sec. 20-17-3 ... Shut down 4,677 ft.
Lowen and others' No. 1 Unknown, NW cor. SW NW Sec. 27-16-11w ... Spudded and shut down.
H. H. Morgan's No. 1 Buscon, SW cor. SE NE Sec. 30-16-9w ... Shut down 1,610 ft.
Petroleum Research Core Drill Corp.'s No. 1 Wolff, NW SE Sec. 6-16-7w ... Shut down 800 ft., litigation. Moved out all but rig.
McKinney & Crawford's No. 1 Sturgeon, NE cor. SW Section 27-16-6w ... Underreaming casing 3,550 ft.
Wiley & Manahan's No. 1 Johnson, C NW Sec. 26-16-5w ... Shut down 4,320 ft.
Reiter-Foster Oil Co.'s No. 1 Unknown, SW cor. SE Sec. 23-15-5w ... Rig.
W. R. Ramsey's No. 1 McMillan, NW SW Sec. 24-15-3w ... Hole full water 4,507-4,517 ft., shut down for orders.
Bu-Vi-Bar's No. 1 Kirkpatrick, NE SW SW Sec. 12-15-1w ... Drilling 4,492 feet.
Finefield and others' No. 1 Jobe, NE cor. NW SE Sec. 12-15-1E ... Sand 1,100-10 ft., dry, shut down 1,252 ft.
Cromwell Oil & Gas Co.'s No. 1 Proctor, C SE Sec. 21-14-3w ... Shut down 400 ft.
Lima Oil & Gas Co.'s No. 1 Grayson, NW cor. NE NE Sec. 11-14-7 ... Underreaming 1,425 ft.
J. A. Evans' No. 1 Thompson, SW cor. NW SW Sec. 2-14-19 ... Drilling 350 ft.
T. B. Slick and others' No. 1 Pazowrech, NW SE Sec. 29-13-5w ... Hole full water 4,338-4,452 ft., shut down 4,580 ft.
Slick & Bailey's No. 1 Koester, C SE NE Sec. 18-13-3w ... Rigging up standard tools and shut down 3,800 ft.
Bu-Vi-Bar Petroleum Co.'s No. 1 School Land, C NE SE Sec. 16-13-4 ... Shut down 4,500 ft.
Barnsdall Oil Co.'s No. 1 Self, SW cor. SE NE Sec. 21-13-9 ... Show of oil 3,160-68 ft. Shut down 3,274 ft.
Elk Drilling Co.'s No. 1 Jones, SW cor. SW Sec. 34-13-17 ... Spudded and shut down.
Sioux Oil Co.'s No. 1 Bradshaw, CEL NW NE Sec. 24-13-18 ... Drilling 540 ft.
L. T. Haney's No. 1 Mitchell, SE cor. NW SE Sec. 33-13-18 ... Shut down 1,560 ft.
Rolestone and others' No. 1 Hixon, CNL SE NE Sec. 1-13-19 ... Spudded.
Cromwell & Franklin's No. 1 Thompson, SW cor. NE NE Sec. 15-12-3w ... Shut down 6,820 ft.
Transcontinental Oil Co.'s No. 1 Knight, NW cor. NE NW Sec. 34-12-8 ... Hole full water, Wilcox, 4,431-52 ft.; dry and abandoned.
Hunt and others' No. 1 Unknown, SE cor. NW SW Sec. 12-12-23 ... Rig.
Ramsey Brothers' No. 1 Newman, CSL NE Sec. 9-11-7w ... Drilling 3,654 ft.
H. F. Wilcox Oil & Gas Co.'s No. 1 Pickard, SE cor. SW Sec. 32-11-2 ... Shut down 4,265 ft.
Prairie Oil & Gas Co.'s No. 1 Gray, SW cor. SW Sec. 19-11-7 ... Drilling 2,830 ft.
Moose & Daniels' No. 1 Stidham, SW cor. NW Sec. 4-11-10 ... Shut down 622 ft.
Citizens Gas Co.'s No. 1 fee, SE cor. NE Sec. 7-11-27 ... Shut down 150 ft.
Magnolia Petroleum Co.'s No. 1 Shelby, SW cor. SW Sec. 28-10-12w ... Drilling 1,030 ft.
J. V. Bailey's No. 1 Hubbard, C NE NW Sec. 1-10-6w ... Shut down 150 ft.
Cromwell & Franklin's No. 1 Gross, SW cor. NE SW Sec. 22-10-2w ... Shut down 4,702 ft.
Shaffer-Kligore-Sykes' No. 1 Ives, C SE SE Sec. 12-10-3 ... Underreaming 4,575 ft.
Prairie Oil & Gas Co.'s No. 1 Lumbley, SW NW SE Sec. 1-10-5 ... Casing 4,154 ft.
Central Commercial Oil Co.'s No. 1 McCrain, NW cor. NE SW Sec. 16-10-5 ... Drilling Cement 4,647 ft.
Roxana and Barnsdall's No. 1 Stidham, NW cor. NE Sec. 6-10-7 ... Location.
Prairie Oil & Gas Co.'s No. 1 Davis, NE SE Sec. 21-10-7 ... Rig.
C. & H. Petroleum Co.'s No. 1 Barnes, SW cor. NW NE Sec. 32-9-22w ... Drilling 2,780 ft.
Pferffel and others' No. 1-A Carter, NE cor. NE Sec. 35-9-22w ... Shut down 300 ft.
Remington and others' No. 1 Fryrear, SW SW NE Sec. 13-9-5w ... Shut down 720 ft.
Prairie Oil & Gas Co.'s No. 1 Varnum, NW cor. SW SW Sec. 5-9-6 ... Drilling 3,000 ft.
Marione Oil Co.'s No. 1 Sanders, NW cor. NE SW Sec. 16-9-18 ... Fishing 2,250 ft.
Superior Oil Co.'s No. 1 Herminghausen, SW cor. NW NE Sec. 24-8-2 ... Fishing 4,110 ft.
The Texas Company's No. 1 Reed, SW cor. SW Sec. 12-8-5 ... Drilling 2,250 ft.
Bedner and others' No. 1 Willis, C SW NW Sec. 13-7-5w ... Shut down 2,450 ft.
Daniels & LeWright's No. 1 Vandever, C SW Sec. 15-7-1w ... Moving in tools.
Twin State Oil Co.'s No. 1 Walker, NE cor. NE Sec. 5-7-6 ... Rig on ground.
Simon & Bean's No. 1 Palmer, SE cor. NW NE Sec. 7-7-6 ... Rigged up and shut down.
Reiter-Foster Oil Co.'s No. 1 Coat, SW cor. NW SW Sec. 14-7-6 ... Location.
Indian Territory Illuminating Oil Co.'s No. 1 Marshall, NW NW SW Sec. 32-7-7 ... Drilling in Simpson 4,712 ft.; 1 bbl. water.
A. C. Varner and others' No. 1 Bonham, CSL NW NW Sec. 5-6-18w ... Shut down 1,127 ft.
Davy & Detrick's No. 1 McGehee, SW SE NW Sec. 10-6-2 ... Shut down 4,998 ft.
McCullough Oil Co.'s No. 1 Powell, NW cor. NW Sec. 11-6-5 ... Location.
Magnolia Petroleum Co.'s No. 1 Vierson, SE SE NW Sec. 5-6-7 ... Cleaning out 3,370 ft.
The Texas Company's No. 1 Reed, NE cor. NW NE Sec. 24-6-7 ... Location.
Gardner Petroleum Co.'s No. 1 Unknown, NW cor. SE Sec. 36-6-7 ... Drilling 1,972 ft.
W. J. Hartley's No. 1 Galbreath, SE cor. NW SE Sec. 29-5-12w ... Shut down 3,394 ft.
Nichlos & Page's No. 1 Drake, SE NE SE Sec. 7-5-7-w ... Shut down 2,307 ft.
Gillespie & Gant's No. 1 Taylor, SW SW SE Sec. 12-5-4 ... Sand 2,818-52 ft., water; plugged back 2,570 ft. shot 80 and 20 quarts; swabbed 29 bbls.; waiting for pipe line connections.
T. B. Slick's No. 1 Barnett, NE SE NW Sec. 13-5-6 ... Shut down 3,245 f..
Sinclair Oil & Gas Co.'s No. 1 McDaniel, NE cor. NE Sec. 17-5-6 ... Rigging up standard tools 3,108 ft.
Mid-Continent Petroleum Corp.'s No. 1 Unknown, SE NE Sec. 14-5-7 ... Location.
Texas Pacific's No. 1 Stewart, SW SE Sec. 11-1-8 ... Drilling 1,800 ft.
T. B. Whitney and others' No. 1 Moore, SE SW Sec. 17-5-9 ... Drilling 500 ft.
Noble Oil & Gas Co.'s No. 1 Wickett, SE cor. SE ... Shut down 285 ft.; waiting pipe.
Winkler and others' No. 1 Tiner, C SW SE Sec. 31-5-9 ... Drilling 2,582 ft.
Magnolia Petroleum Co.'s No. 1 Pursley, SE SW NW ... Rigging up rotary.
Dixie Oil Co.'s No. 1 Perkins, SE NW Sec. 15-4-1 ... Drilling 4,367 ft.; show of oil.
R. F. Garland's No. 1 Strickland, SW NW SW Sec. 10-4-3 ... Shut down 2,650 ft.
Marland Oil Co.'s No. 1 Lawrence, C SW SE Sec. 10-4-4 ... Fishing collapsed casing 1,215 ft.
C. J. Shervin and others' No. 1 Wright, NW NE NE Sec. 13-4-6 ... Shut down 1,925 ft.
Boles and others' No. 1 Rayburn, SW SE Sec. 35-4-6 ... Shu. down 1,340 ft.

J. E. Crosbie's No. 1 Nowabbi, SE NE SW Sec. 8-4-7 ... Rig on ground.
Henry and others' No. 1 Gregg, SW SE NW Sec. 14-4-7 ... Shut down 1,096 ft.
Jolly-Ogg Oil Co.'s No. 1 Neeley, SE NE Sec. 24-3-10w ... Rigging up rotary.
Magnolia Petroleum Co.'s No. 1 Vaughn, NW SW NW Sec. 12-3-1 ... Drilling 4,605 ft.
Heath & Bauman's No. 1 Hattell, SW SE SW Sec. 10-3-3 ... Shut down 1,640 ft.
Danciger & Ellis' No. 1 Spitler, NE cor. SE Sec. 10-2-10w ... Landing casing 2,202 ft.
Ashcraft and others' No. 1 School Land, SE cor. SE Sec. 20-2-10w ... Broken sandy lime 822-954 ft.; swabbed 3 bbls.; total depth 975 ft.; shut down; material moved out.
Green and others' No. 1 Wilson, C NE SW Sec. 14-1-12w ... Drilling 3,200 ft.
Revels & Magee's No. 1 Labor, NW cor. NW Sec. 17-1-2 ... Drilling 600 ft.
McCrow and others' No. 1 Paxton, SW SE NE Sec. 35-1-8 ... Shut down 973 ft.
Indian Territory Illuminating Oil Co.'s No. 1 Harris, SE cor. SW NW Sec. 10-1-11 ... Shut down 1,355 ft.
Indian Territory Illuminating Oil Co.'s No. 1 Harris, SW cor. NW Sec. 10-1-11 ... Drilling 1,210 ft.

OKLAHOMA PANHANDLE

Phillips and others' No. 1 Unknown, NW cor. NW Sec. 24-6-2 ... Shut down 3,560 ft.
Sinclair Oil & Gas Co.'s No. 1 School Land, NW cor. NW, Sec. 22-5-3 ... Building rotary rig; old total depth 3,865 ft.
Ramsey Brothers' No. 1 School Land, C SW SW Sec. 21-5-5 ... Location.
Ramsey Brothers' No. 1 Unknown, C NE Sec. 27-5-5 ... Drilling up underreamer lugs 4,562 ft.
Ramsey Brothers' No. 2 Unknown, SE cor. SE Sec. 4-5-6 ... Dry and abandoned 4,265 ft.
Ramsey Brothers' No. 1 School Land, C SE Sec. 34-4-1 ... Drilling 1,400 ft.
H. F. Wilcox Oil & Gas Co.'s No. 1 Hovey, NE SW Sec. 21-4-14 ... Plugging 4,411 ft.
Gladys-Belle Oil Co.'s No. 1 Iserial, SW NE Sec. 25-3-7 ... Drilling 4,293 ft.
Valerius & Wilkinson's No. 1 Unknown, SE cor. NE Sec. 28-3-7 ... Drilling 2,545 ft.
H. F. Wilcox Oil & Gas Co.'s No. 1 Zea, NE SW Sec. 28-3-13 ... Underreaming 3,765 ft.
Skaer and others' No. 1 Mathis, SW NE NE Sec. 17-3-23 ... Drilling 3,170 ft.
Ross Fenton and others' No. 1 Graves, NE NE Sec. 2-2-9 ... Spudded and shut down.
Danner Oil Co.'s No. 1 Graves, NE cor. SW SW Sec. 23-2-18 ... Shut down 700 ft.
Newsom and others' No. 1 Allison, SE SE Sec. 4-1-12 ... Drilling 4,040 ft.
Dotton and others' No. 1 Baker, C NW Sec. 4-1-13 ... Rotary rig blown down.
H. & H. Oil Co.'s No. 1 Hitch, NE cor. NE Sec. 26-1-15 ... Shut down 600 ft.
Three Way Oil Co.'s No. 1 Cane, SW NW Sec. 11-1-18 ... Shut down 3,005 ft.
Conley and others' No. 1 Unknown, SE cor. NW Sec. 5-1-19 ... Spudded and shut down.

SOUTHERN OKLAHOMA

Green Oil & Refining Co.'s No. 1 Kemp, SE cor. NW NW Sec. 28-8s-9 ... Shut down 600 ft.
J. R. McCoy and others' No. 1 Smith, SE cor. NW Sec. 14-7s-6w ... Rigging cable tools.
Magnolia Petroleum Co.'s No. 1 Davis, NW SW NE Sec. 7-7s-3 ... Drilling 3,225 ft.
Alexander & Oppenheimer's No. 1 Hampton, SE cor. NE Sec. 26-7s-11 ... Shut down 1,425 ft.
W. Bassett's No. 1 Unknown, C NE NW ... Location.
Hugo Gay's No. 1 Smith, SE cor. SW NW Sec. 27-6s-16 ... Shut down 1,540 ft.
Choctaw Petroleum Co.'s No. 1 Wilson, SW cor. SW Sec. 15-6-19 ... Shut down 1,346 ft.
A. N. Peterson's No. 1 Mounts, SW cor. SW Sec. 3-5s-15w ... Rig.
Fred Chopman's No. 1 Nelf, NE cor. NW NE Sec. 11-5s-4 ... Shut down 380 ft.
Kennedy Drilling Co.'s No. 1 Sacra, SW NE SW Sec. 17-5s-5 ... Shut down 1,810 ft.
Magnolia Petroleum Co.'s No. 1 Marshall, NW SW NW Sec. 26-5s-7 ... Abandoned 2,205 ft.
Laurel Oil & Gas Co.'s No. 1 Chastine, SE NW Sec. 26-4s-5 ... Drilled to 3,055 ft. and abandoned; rigging rotary to drill deeper.
Landfair and others' No. 1 Smith, SE SW SE Sec. 6-2s-16w ... Shut down 2,280 ft.
Pierce & Brown's No. 1 Garland, SE NW NE Sec. 34-2s-6w ... Shut down 1,700 ft.
McPherson and others' No. 1 Wyand, CSL NE NW Sec. 7-2s-9 ... Shut down 4,400 ft.
Wapanucka Oil Co.'s No. 1 Banks, Sec. 28-2s-9 ... Show of oil 2,181 ft.
Jenkins and others' No. 1 Smith, SW cor. SE SE Sec. 34-1-10w ... Shut down 1,530 ft.
Grooms and others' No. 1 Morris, CSL NW NE Sec. 19-1s-2w ... Shut down 3,463 ft.
Thompson Oil Co.'s No. 1 Freeman, SE cor. Sec. 27-1s-2 ... Rig.

WILDCAT OPERATIONS IN PANHANDLE

(Continued from Page 56)

Marland Oil Co.'s No. 1 A. M. James, C SW W ½ Sec. 21, S. H. McElreath Sur. ... Drlg., 3,230 ft.
Marland Oil Co. et al's No. 1 Capitol Synd., Sec. 36, Blk. 18, Capitol Synd. land ... S.D., 4,196 ft.

DONLEY COUNTY

A. T. Drlg. Co.'s No. 1 F. E. Harrington, Sec. 39, Blk. 3-C ... 1,200 ft. wtr., 3,115-22 ft; show gas, 3,140-60 ft; dry G.W., 3,200-93 ft; S.D., 3,493 ft.

FLOYD COUNTY

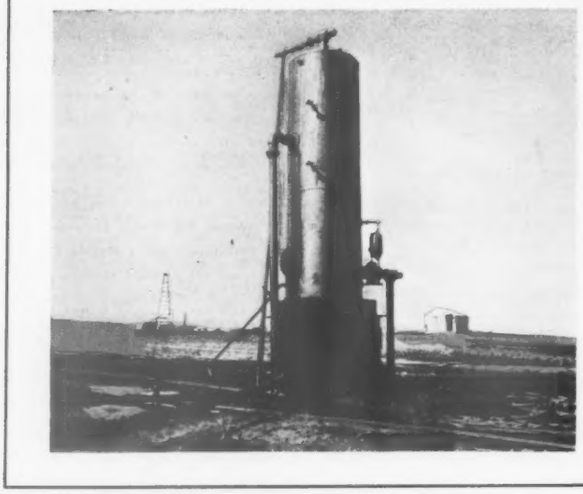
Expitn. Co.'s No. 1 S. H. Boone, C. C. H. Johnson Sur. ... Spudded and S.D.
Expitn. Co.'s No. 1 Land & Cattle Co. ... S.D., 730 ft for orders.
Hoffer Oil Corp.'s No. 1 Nelson ... Spudded and S.D.

GRAY COUNTY

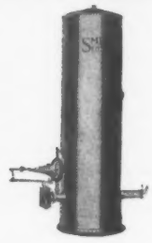
Archer Blake's No. 1 Turneaux, SW cor. Sec. 111, Blk. B-2 ... S.D., 255 ft.
Bay Shore Oil Co.'s No. 1 C. W. Bradford, Sec. 143, Blk. 2-B ... T.D., 2,666 ft; S.L.M. shot with 10 qts. to loosen bit and 8-in. collapsed; S.D., 2,705 ft.
Biggs et al's No. 1 Morse, SW cor. Sec. 3, Blk. 26, H. & G. N. Sur. ... Rig.
Cole O. & G. Co.'s (was Magdalene Oil Co.'s) No. 1 J. E. Williams, Sec. 17, Blk. 1 ... S.D., 3,860 ft.
Danciger O. & R. Co.'s No. 7 W. Jackson, Sec. 84, Blk. B-2, H. & G. N. Sur. ... 3,000 ft T.D.; making 5,000,000 ft. gas from 2,779-3,000 ft. and 5 bbl. oil to D.D.
Danciger O. & R. Co.'s No. 9 W. Jackson, NW cor. NE NW, Sec. 88, Blk. B-2 ... Rigging.
Danciger O. & R. Co.'s No. 10 W. Jackson, NE cor. NW NW, Sec. 88, Blk. B-2 ... Bldg. rig.
Danciger O. & R. Co.'s No. 1 W. Crank, SW cor. NW, Sec. 163, Blk. 3, I. & G. N. Sur. ... Location.
Danciger O. & R. Co.'s No. 1 A. Chapman, SW cor. NW, Sec 7, Blk. 26, H. & G. N. Sur. ... Location.
Danciger O. & R. Co.'s No. 1 C. W. Bradford, NE cor. SE, Sec. 123, Blk. B-2, H. & G. N. Sur. ... Drlg., 520 ft.
Donley Gray Oil Co.'s No. 1 J. W. Gordon, Sec. 79, Blk. 3 ... Wtr., 3,380 ft. and 3,420 ft; show oil; H.F.W., 3,650 ft; S.D., 3,870 ft.
Delaney et al's No. 2 Jackson ... 1,000,000 ft. gas, 2,590 ft., increased to 11,000,000 ft. at 2,700 ft; drlg., 2,994 ft; show oil, 2,850-77 ft; T.D., 3,054 ft; P.B. to 3,025 ft; had 1,500 ft. salt wtr., 2,952-54 ft; shot with 120 qts., 2,977-3,025 ft; swbd. 75 bbls. 1st 24 hrs; now S.D.
Delaney et al's No. 3 W. Jackson, SE cor. NE SW, Sec. 88, Blk. B-2 ... Spudded.
Delaney et al's No. 6 Jackson, SW cor. E half, SW Sec. 88, Blk. B-2, H. & G. N. Sur. ... Drlg., 630 ft.
Edwards et al's No. 1 E. J. Case, NE cor. Sec. 182, Blk. B-2, H. & G. N. Sur. ... 70,000,000 ft. gas, 2,512-2,630 ft; drlg. by bit, 3,028 ft; 1,000 ft. oil in hole; drlg. by whipstock.
Empire G. & F. Co.'s No. 1 A. Barrett, C SW, Sec. 122, Blk. 3, I. & G. N. Sur. ... Spudded.
Empire G. & F. Co.'s No. 1 E. J. Case, C NE, Sec. 180, Blk. B-2, H. & G. N. Sur. ... Spudding.

"If it's worth drilling for it's worth saving"

TYPE NO. 2



TYPE NO. 1. One of the first five Smith Separators constructed, still paying dividends to the Atlantic Oil Producing Company, West Texas.



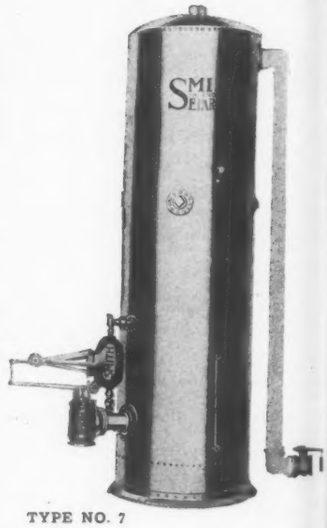
TYPE NO. 4

TYPE NO. 9

"There's a type for every service

TYPE NO. 3

and a size for every need"



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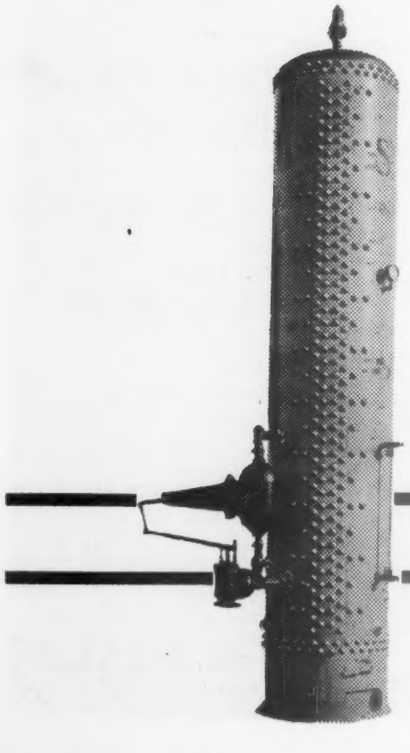

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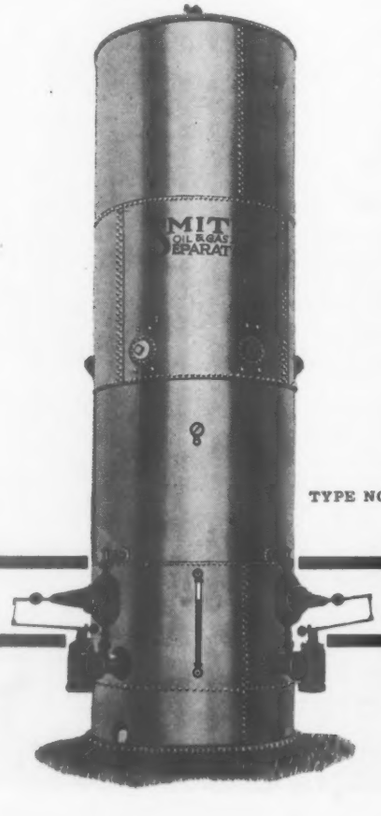

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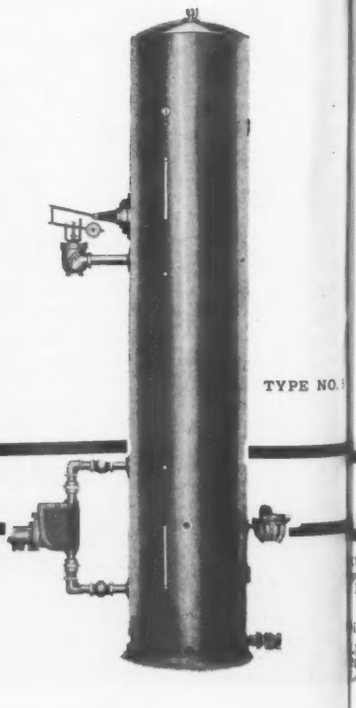
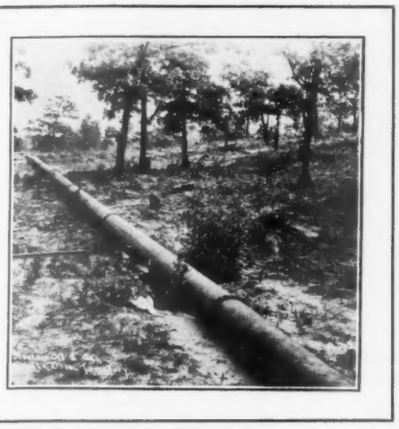


TYPE NO.

"If it's worth drilling for it's worth saving"



12-inch gas line, Sinclair Oil and Gas Company, equipped with Victaulic Couplings.

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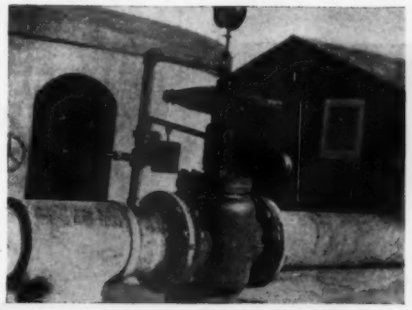

A 10" Fisher Type 88 Vacuum Regulator, holding atmospheric pressure on tank.

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A Reed Air Filter installed on the intake of your compressor or engine increases the life of all lubricating parts. It filters 97% of all dust, dirt and grit in the air. It is made in various types and sizes.

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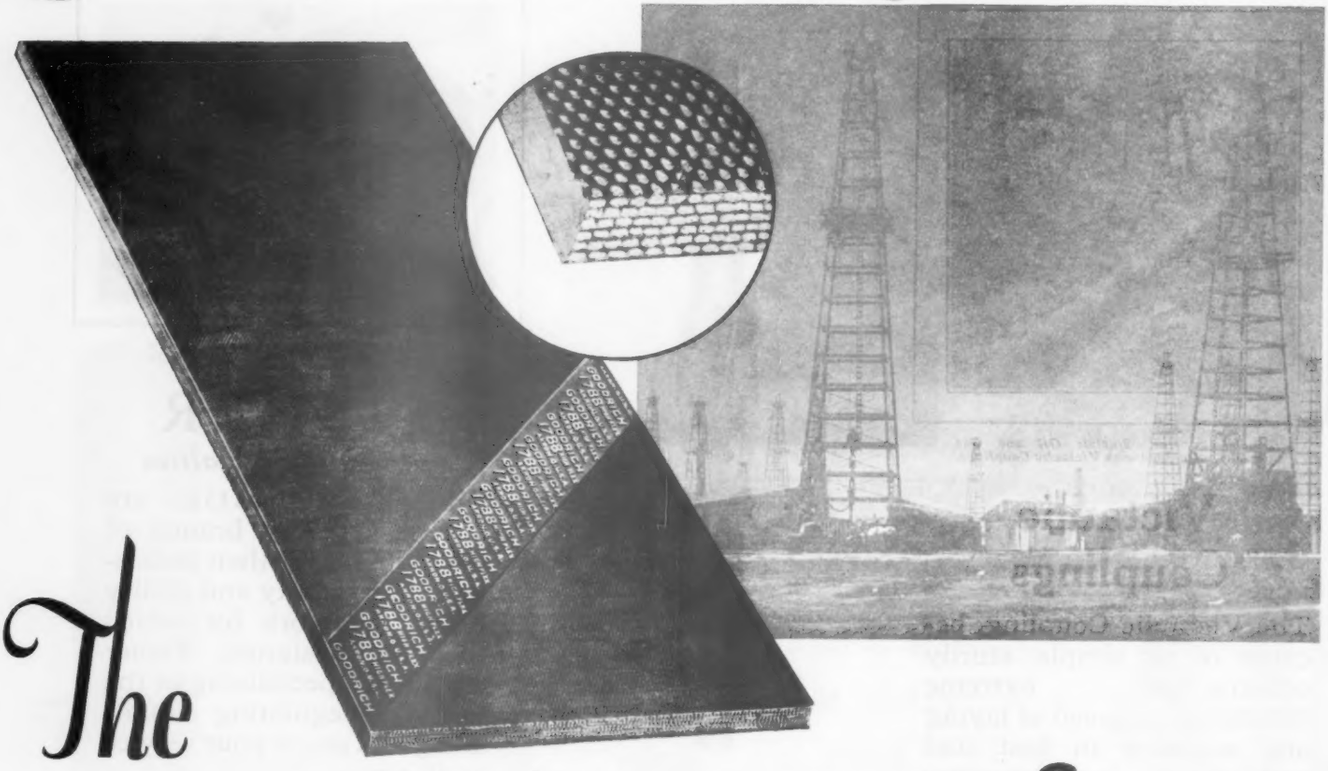
Goodrich "1788 Highflex" Belt



The BELT THAT'S BUILT FOR SERVICE

The strenuous service to which oil field belts are subjected proves the correctness of the Goodrich scientific principles of belt construction. Goodrich 1788 "Highflex," on the hardest drives, are longer-lived, more economical and more productive because they offer the outstanding advantages of free bending of ply on ply, no folds in fabric, no seams to open up, no ply separation and NO BOOTLEGGING. Not affected by atmospheric changes.

Look for the diagonal Red Bar Trade Mark . . . Square edge construction . . . Red sides

The new square edge Goodrich "1788 Highflex" is made of highest quality belt duck—50% less stretch—and pure gum, elastic friction. Foldless, laminated construction affords perfect flexing, even on small pulley, high speed drives, with better adhesion, less slippage, and more constant speed. Made by The B. F. Goodrich Rubber Company, Akron, Ohio—the highest recommendation we can make for its adoption on your most difficult drives!

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INTERNATIONAL
Supply ... ISCO Company

Empire G. & F. Co.'s No. 1 S. A. Cobb, NW cor. NE. Sec. 64, Blk. 25, H. & G. N. Sur. ... Spudding.
Empire G. & F. Co.'s No. 1 C. A. Bell, C SE, Sec. 134, Blk. 3, I. & G. N. Sur. ... Spudding.
Empire G. & F. Co.'s No. 1 Bender, SE cor. Sec. 164, Blk. 3, I. & G. N. Sur. ... Set. 20-in., 293 ft; drlg., 749 ft.
Eslick et al's No. 1 Mrs. J. A. Hopkins, NW cor. W 80 acres of SW ¼ Sur. 84, H. & T. C., Blk. B-2 ... Location.
Gibson Oil Corp.'s No. 3 J. B. Bowers, 1,650 ft. from E line and 990 feet from S line, E half, Sec. 92, Blk. B-2 ... Drlg., 1,020 ft.
Gibson Oil Corp.'s No. 9 J. B. Bowers, NE cor. Sec. 92, Blk. B-2, H. & G. W. Sur. ... Location.
Gulf's No. 2 Bowers, 990 ft. from S line and 330 ft. from W line of W half, Sec. 89, Blk. B-2, H. & G. N. Sur. ... Drlg., G.W., 3-128 ft., flowing 30 bbls. daily.
Gulf Prod. Co.'s No. 4 J. B. Bowers, SE SW SW, Gulf lease in Sec. 89, Blk. B-2 ... Drlg. Sand, 133 ft.
Gulf Prod. Co.'s No. 5 J. B. Bowers, SW SE SW, Gulf lease in Sec. 89, Blk. B-2 ... Set 15½-in. at 528 ft., drlg. 550 ft.
Gulf's No. 2 Holmes, SE cor. NE, Sect. 107, Blk. 3, I. & G. N. Sur. ... Drlg. lime, 2880 ft., 25,000,000 ft. gas 2,870-80 ft.
Gulf Prod. Co.'s No. 1 M. Davidson-A, 330 ft. from S. and E lines of NW cor. E half NW, Sec. 87, Blk. B-2, H. & G. N. Sur. ... Drlg. red rock 925 ft.
Gurnsey Oil Co.'s No. 1 B. E. McKinney, 1,980 ft. E and 800 ft. N. of SW cor. Sec. 163, Blk. 3, I. & G. N. Sur. ... 15,000,000 ft. gas, 3,026-3,110 ft; show oil, 3,270 ft; making 1 bailer wtr. per hr. at 3,350 ft; P.B. to shoot. Shot with 280 qts. 3-160-3,278 ft., C.O.
Gurnsey Oil Co.'s No. 2 B. E. McKinney, Sec. 163, Blk. 3, I. & G. N. Sur. ... Show oil 3,025-30 ft., Drlg. 3,084 ft.
Hardendorf Drlg. Co.'s No. 1 G. A. Henderson, NE E half NE, Sec. 47, Blk. 25, H. & G. N. Sur. ... Spudding.
Collins & Gardner's (formerly Lefors Pet. Co.'s) No. 1 J. Shaw, Lefors townsite ... 10,000,000 ft gas, 2,440-50 ft; 70,000,000 ft. gas, 2,625 ft; T.D., 2,650 ft; trying to pull 8-in. and it parted; swedging pipe; may complete as gasser.
McAuley et al's No. 1 Morse, SE cor. N half, Sec. 3, Blk. 56, H. & G. N. Sur. ... Rig.
Majestic Oil Co.'s No. 4 J. B. Bowers, SW cor. E half, Sec. 92, Blk. B-2 ... Rig.
Magnolia Pet. Co.'s No. 1 J. Bowers ... Running 6-in. 2,800 ft.
Magnolia Pet. Co.'s No. 1 J. J. Wall, NE cor. Sec. 162, Blk. 3, I. & G. N. Sur. ... Drlg., 2,780 ft.
McMan Oil & Gas Co.'s No. 1 Osborne, NE cor. W half SE, Sec. 86, Blk. 3, I. & G. N. Sur. ... Rigging up.
Midwest Explta. Co.'s No. 1 J. Bowers, NW cor. W half SW, Sec. 63, Blk. B-2, H. & G. N. Sur. ... Topped G.W., 2,785 ft; show oil, 2,958 ft; flowed 810 bbls. first 24 hrs., 3,054-64 ft; now swb. 280 bbls. daily; to deepen.
Midwest Explta. Co.'s No. 1 L. Holmes, Sec. 86, Blk. 3, I. & G. N. Sur. ... Drlg., 2,550 ft.
Neudigate et al's No. 1 A. Chapman, NE cor. E ½, SE, Sec. 52, Blk. 25 ... 500,000 ft. gas, 2,760-65 ft; rainbow of oil, 2,820-25 ft; salt wtr; G.W., 2,827-28 ft; set 6-in 2,889 ft; rainbow show.
Operators Oil Co.'s No. 2 W. Jackson, NW cor. N ½ NE, Sec. 83, Blk. B-2 ... Spudding.
Phillips Pet. Co.'s No. 1 J. B. Bowers, NW cor. E half, NE, Sec. 47, Blk. B-25, H. & G. N. Sur. ... Cellar.
Phillips Pet. Co.'s No. 1 Davidson (Myson) ... Drlg., 1,920 ft.
Phillips Pet. Co.'s No. 2 Davidson (Myson), NE cor. NW NW, Sec. 87, Blk. B-2, H. & G. N. Sur. ... Rig.
Phillips Pet. Co.'s No. 1 W. Jackson (was Clark et al's No. 2) ... S.O., 2,890 ft; swb. 240 bbls., daily, 2,905-39 ft; to drill deeper.
Phillips Pet. Co.'s No. 2 W. Jackson (was Clark et al's No. 3) ... T.D., 2,994 ft; swabbing, 60 bbls. daily; to D.D; off prodn.
Phillips Pet. Co.'s No. 3 W. Jackson ... Drlg., 2,775 ft; show gas 2,572-2,600 ft.
Phillips Pet. Co.'s No. 1 Jackson-Riley (was Clark et al's No. 1 W. Jackson) ... 7,000,000 ft. gas, 2,442-2,545 ft; swbd. 160 bbls. at 2,981 ft; T.D., 3,010 ft; to D.D.
Phillips Pet. Co.'s No. 2 Jackson-Riley ... Drlg., 2,710 ft.
Phillips Pet. Co.'s No. 3 Jackson Riley, Sec. 83, Blk. B-2 H. & G. N. Sur. ... Recemented 12½-in., 1,027 ft.
Phillips Pet. Co.'s No. 4 Jackson-Riley, SE cor. W half SW, Sec. 83, Blk. B-2 ... Bldg. rig.
Pampa Oil Co.'s No. 1 W. R. Campbell, Sec. 90, Blk. 3 ... 700 ft. wtr., 3,430 ft; S.D., 3,422 ft.
Purple Sage Oil Co.'s No. 2 E. B. Johnson ... Drlg., 1,680 ft.
Ray & Massie's No. 1 A. Chapman, NE NW SW, Sec. 51, Blk. 25 ... Drlg., 1,500 ft.
Renaud Pet. Co.'s No. 2 M. Huselby, NE cor. SW, Sec. 55, Blk. 25, H. & G. N. Sur. ... Spudding.
Remo Oil Co.'s No. 1 B. E. McKinney ... Rigged up and S.D.
St. Clair Oil Co.'s No. 1 C. H. Rowe ... Spud. and S.D.
St. Clair Oil Co.'s No. 1 L. S. Stockton, SE cor. Sec. 35, W. R. Lee Sur. ... Rig.
Shamrock Pet. Co. et al's No. 1 J. B. Back, SE NW SW, Sec. 44, Blk. 25 ... Show gas, 2,490 ft; gas dry G.W., 2,935 ft; T.D., 3,204 to complete for gasser.
Shamrock Oil Co.'s No. 1 Chapman, NE E half SW, Sec. 50, Blk. 25 ... Drlg., 2,250 ft.
Skelly Oil Co.'s No. 1 Bradford, NE cor. Sec. 118, Blk. B-2, H. & G. N. Sur. ... Drlg., 2,660 ft.
Skelly Oil Co.'s No. 2 Jackson ... 1,000,000 ft. gas, 2,695 ft; swb. 190 bbls., 3,037-40 ft; drlg., 3,105 ft.
Spartan Oil Co.'s No. 1 J. Hopkins ... Rig.
Sullivan et al's No. 1 A. Chapman-A ... Drlg., 1,865 ft.
Sun Oil Co.'s No. 1 Jackson ... Top lime, 2,035 ft; drlg., 2,770 ft.
Staggers Oil Co.'s (was Ruby Oil Co.'s) No. 1 B. F. Tally ... T.D., 635 ft; S.D.
The Texas Company's No. 2 J. B. Bowers ... Show gas, 2,810 ft; show oil, 2,820 ft; fish., 3,015 ft.
The Texas Company's No. 3 J. B. Bowers ... U.R., 6-in., 2,240 ft.
The Texas Company's No. 4 J. B. Bowers, SE cor. SE, Sec. 93, Blk. B-2 ... Cmt. 10-in. csg., 984 ft.
The Texas Company's No. 2 H. M. Davis, SW cor. NW, Sec. 84, Blk. 3 ... Drlg., 2,150 ft.
The Texas Company's No. 1 McLarty et al, SW cor. E ½ NW, Sec. 1, Blk. 1, A. C. H. & B. Sur. ... Drlg., 820 ft.
The Texas Company's No. 1 S. McLarty ... Drlg., 1,260 ft.
The Texas Company's No. 1 W. H. Taylor, C NE, Sec. 10, Blk. B-2 (formerly Smallwood et al's) ... Drlg., 300 ft.
The Texas Co.'s No. 1 C. Thut, C N half of E 320 A, Sec. 1, I. & G. N. Sur. ... Running 10-in. csg., 965 ft.
The Texas Co.'s No. 1 M. B. Davis, SE cor. NE, Sec. 8, Blk. 1, A. C. H. & B. Sur. ... Location.
The Texas Co.'s No. 2-A Chapman, NE cor. NW NW, Sec. 51, Blk. 25, H. & G. N. Sur. ... Cellar.
Viola Oil Corp.'s No. 1 G. H. Saunders ... Rig.

HALE COUNTY

Bailey & Young's No. 1 Thomas, Sec. 1, Blk. J.K.L. ... S.D., 175 ft.
Donnell Pet. Co.'s No. 3 Mullican, NW cor. Sec. 66, Blk. A-3, I. & S. B. Sur. ... Top pay in sandy shale, 405 ft; ⅛ bailer oil and 3 bailers wtr. per day; S.D., 620 ft.
Donnell Pet. Co.'s No. 1 Mullican, C Sec. 21, Blk. B, R. M. Thompson Sur. ... 300 ft. fluid in hole from 407-14 ft; S.D.
Explta. Co.'s No. 1 Crawford, C NE, Sec. 17, Blk. C-3, T. T. R. R. Sur. ... Spudded and S.D.
Explta. Co.'s No. 1 Goodman ... Drlg., 300 ft.
A. S. Mimm's No. 1 W. A. Ritcher, 700 ft. from east line and 1,300 feet from south line, Sec. 17, Blk. X, John Glynn Sur. ... S.D., 1,140 ft.
Tolbert & Simms' (was Goulds & Stone's) No. 1 Kitteral, SE cor. NW, Sec. 65, Blk. A-3, G. C. & S. F. Sur. ... S.D., 485 ft.

HALL COUNTY

Briscoe Oil Assn's (was Seifert et al's) No. 1 Owens, C NE, Sec. 179, Blk. S-5, Dennison & Pacific Sur. ... Spudded and S.D.

HANSFORD COUNTY

Caldwell et al's No. 1 J. Adriance est. ... S.D., 990 ft.

Oklavania et al's No. 1 Coots, Sec. 13, Blk. 45, H. & T. C. Sur. ... U.R., 10-in. csg., 990 ft.

HOCKLEY COUNTY

World Oil Co.'s No. 1 Ellwood ... S.D., 1,455 ft. to install rotary.

HARTLEY COUNTY

Deep Rock Oil Co.'s No. 1 Lymann & Balfour, Sec. 9 ... Preparing to abd., 4,038 ft.
Eslick et al's No. 1 J. R. Irving, Sec. 13, Blk. 13 ... Topped G.W., 3,103 ft; show oil, 3,226 ft; hole full wtr., 3,745-55 ft; S.D., 4,000 ft.

HEMPHILL COUNTY

Hoover et al's No. 1 Schaller est., Sec. 4 ... Spudded and S.D.
Hoover et al's No. 1 fee, J. S. Hood Sur. ... Drlg., 4,956 ft.

HUTCHINSON COUNTY

R. G. Barnum et al's No. 1 Garland Sanford, Sec. 78, Blk. 46 ... Rig.
Beam et al's No. 1 Cockrell, Sec. 3, Blk. 23 ... S.D., 405 ft. for orders.
Big Coach Oil Co.'s No. 1 Dunnaway, Sec. 5, Blk. T ... S.D., 750 ft.
Conklin et al's No. 1 Johnson, Sec. 1, Blk. X03, H. & O. B. Sur. ... S.D., 600 ft.
Dixon Creek Oil Co.'s No. 1 Burnett est., NW cor. of E 240 A of N 320 A, Sec. 120, Blk. 5, I. & G. N. Sur. ... Spudding.
Harris et al's No. 1 J. Q. Bost, Sec. 10, Blk. Y-2, T. T. R. R. Sur. ... Drlg., 820 ft.
Holmes & Quinn's No. 1 J. K. Quinn, SW cor. Sec. 9, Blk. 3, B. S. & F. Sur. ... Drlg., 250 ft.
McMan O. & G. Co.'s No. 1 Albert Yake, SW cor. SE, Sec. 2, Blk. J, H. & G. N. Sur. ... Set 8¼-in. pipe, 2,107 ft. Show gas 2,220 ft; drlg., 2,330 ft.
Phillips Pet. Co.'s No. 12 Elva-Whittenburg, E. Tomlinson Sur. ... T.A., 4,445 ft.
Phillips Pet. Co.'s No. 1 Perkins-Hamilton, SW cor. of N 240 acres of S half, Sec. 22, Blk. 47, H. & T. C. Sur. ... Location.
Skelly Oil Co.'s No. 2 Armstrong & Byrd ... Drlg., 850 ft.
Skyrocket Oil Co.'s No. 1 Mrs. R. A. Jameson ... 800 ft. oil in hole from 3,146 ft; drilled to 3,180 ft; shot with 60 qts., 3,125-60 ft; bridged; no increase in oil after dpning; C.O.
The Texas Co.'s No. 1 Cockrell-B, Sec. 3, Blk. B-3 ... T.P., 3,015 ft; 500 ft. oil in hole; run liner, 3,040 ft; S.D., 3,121 ft.
Wendell et al's No. 1 Johnson Bros. ... Drlg., 825 ft.

KING COUNTY

Humble O. & R. Co.'s No. 1 Pitchfork, Sec. 171, Blk. A-96, John H. Gibson Sur. ... Hole full wtr., 3,375 ft; U.R. 8-in. csg., 3,435 ft; S.D., 3,593 ft.
J. L. Pattison's No. 1 Patton ... Slight show gas, 2,115-30 ft; fish., 3,410 ft.

LAMB COUNTY

Dan Freel et al's No. 1 Ellwood, CWL Sec. 9, Blk. T, T. A. Thompson Sur. ... Spudded and S.D.
Spade Oil Co.'s No. 1 Andrews, 1,085 ft. from N line and 200 ft. from E line, Labor 23, League 643, (5 miles NE of Littlefield) ... Spud and S.D.
Tolbert & Simms' No. 1 Ellwood, NE SW SW, Sec. 14, Blk. B, R. M. Thompson Sur. ... 712 ft; small show oil and hole full wtr.; dry, 1,504 ft; temp. abd.

LIPSCOMB COUNTY

Cal-Tex's No. 1 Bradford, C NE NE, Sec. 899, Blk. 43, H. & T. C. Sur. ... Spudded and S.D.
Camp Creek Oil Co.'s No. 1 Mrs. H. D. May, Sec. 612, Blk. 43 ... S.D., 2,000 ft.
McCorkle's No. 1 A. Barton, NE cor. SW SE, Sec. 504, Blk. 43, H. & T. C. Sur. ... Wtr. in lime, 4,126-40 ft; 6-in. set, 4,155 ft; 5 3/16-in. csg. set, 4,420 ft; S.D., 4,705 ft.
Ozark Drlg. Co.'s No. 1 Frass, NE SE, Sec. 106, Blk. 10, H. & T. C. Sur. ... Rig on ground.
Smith, Kinsley & Ruby's No. 1 C. W. Jones, NE cor. SW, Sec. 100, Blk. 43 ... Show oil, 3,520 ft; S.W., 3,900 ft; U.R. 6-in. csg., 4,330 ft.

LUBBOCK COUNTY

Center Oil Co.'s No. 1 Bowles ranch ... Small show oil, 1,133-40 ft., in sand; S.D., 2,730 ft.

MOORE COUNTY

Amarillo Oil Co.'s No. 1 Thompson-Amarillo, C. Sec. 22, Blk. 26, E. L. & R. R. Sur. ... Spudding.
Prairie and Shamrock's No. 2 Gober, Sec. 16, Blk. M-21 ... T.D., 2,520 ft; recmt. 12-in., 1,525 ft; T.D., 2,590 ft. re-cmt.

MOTLEY COUNTY

Explta. Co.'s No. 1 Burleson ... Spudded and S.D.
Explta. Co.'s No. 1 Tillson ... S.D., 750 ft. for repairs.
Explta. Co.'s No. 1 Matador Land & Cattle Co., C SW, Sec. 27, John Gibson Sur. ... S.D., 1,002 ft.
Wheeler et al's No. 1 C. D. Bird, C NE, Sec. 4, Blk. S, Stephens Sur. ... Spudded and S.D.

OLDHAM COUNTY

Prairie O. & G. Co.'s No. 1 Landegrin, SE cor. NE SW, Sec. 46, League 310, Capital land ... 1,900 ft. wtr., 4,035-93 ft; 1 bailer wtr. per hr. and light scum oil, 4,527 ft. (steel line meas.) cmt. 6-in., 4,442 ft; 2,000 ft. S.W., 4,850-56 ft; Drlg., 5,635 ft.

OCHILTREE COUNTY

W. G. Burton's No. 1 Strickler ... Fish. tools, 3,940 ft.
Hamilton et al's H. E. Wamble ... S.D., 250 ft.
McCorkle P. L. Co.'s No. 1 R. H. Moore ... S.D., 1,600 ft.
Montgomery's No. 1 Weinett Sur. ... S.D., 850 ft.
Standard Development Co.'s No. 1 Bowen ... S.D., 900 ft.

POTTER COUNTY

Amarillo Oil Co.'s No. 1 Masterson-K, C SW, Sec. 85, Blk. O-18, D. & P. R. R. Sur. ... Drlg., 800 ft.
Amarillo Oil Co.'s No. 1 Fuqua, C NW, Sec. 18, Blk. 6, B. S. & F. Sur. ... Rig.
Frank Allen et al's No. 1 W. H. Bush ... S.D., 410 ft; corrected T.D.
Prairie O. & G. Co.'s No. 2 Lee Bivins, 660 ft. N. and 330 ft. W. of SE cor. Sec. 39, Blk. M-20, G & M. Sur. ... Set. 10-in., 1,385 ft; drlg., 2,251 ft.

RANDALL COUNTY

Westbrook Oil Co.'s No. 1 J. Beckman, SW cor. SE NE, Sec. 46, Blk. B-5 ... Drlg., 2,540 ft.

ROBERTS COUNTY

Big Bend Oil Co.'s No. 1 Mrs. H. Ledrick & Sons, Sec. 7, Blk. 5-A ... Show gas, 4,990 ft; show oil, 4,992 ft; csg. set, 4,992 ft; T.D., 5,153 ft; U.R. for 3-in.

SHERMAN COUNTY

Gibson Oil Co.'s No. 1 Bivins, Sec. 35, Blk. 3-B ... 100,000 ft. gas, 2,016-26 ft; T.D., 3,353 ft; 2,000 ft. S.W., 3,325-33 ft; fish., 3,353 ft.
Phillips Pet. Co. and Prairie O. & G. Co.'s No. 1 Price & Fuqua, C NE, Sec. 33, Blk. 2-B, G. H. & H. Sur. ... 100,000 ft. gas, 2,105-10 ft; T.D., 3,420 ft; 2,000,000 ft. gas, 3,325-3,420 ft. lime; 400 ft. wtr. in hole from 3,535 ft; run 6-in. csg. to 3,535 ft; hole full of water, 3,680 ft; drlg., 3,705 ft.

WHEELER COUNTY

Byrens et al's No. 1 Johnson, SW cor. NE, Sec. 88, Blk. A-5, H. & G. N. Sur. ... Drlg., 600 ft.
Rook et al's (was Foster et al's) No. 1 S. H. McDonald, SE cor. NW SW, J. N. Lindsay Sur. ... Drlg., 1,520 ft.
Hatcher et al's No. 2 J. Hatcher, C NE SW, Sec. 40, Blk. 23, H. & G. N. Sur. ... U.R. 8¼-in csg., 1,210 ft.
Mid-Kansas O. & G. Co.'s No. 1 J. F. Coates, Sec. 93, Blk. 17, H. & G. N. Sur. ... Drlg., 1,340 ft.
Mid-Kansas O. & G. Co.'s No. 1 J. L. Newton, Sec. 92, Blk. 17, H. & G. N. Sur. ... Drlg., 1,150 ft.
Rook & Angus' No. 1 Smock (Linkey) C SE SE, Sec. 5, Blk. 24, H. & G. N. Sur. ... Drlg. lime, 1,640 ft.
Smith Brady et al's No. 1 P. J. Sorenson, Sec. 53, Blk. A-4 ... S.D., 2,120 ft. for orders.
Sun Oil Co.'s No. 1, G. Krc. C NW NW, Sec. 127, Blk. 23 ... Rig.
The Texas Co.'s No. 2 Morgan, Sec. 92, Blk. 17 ... 1,000,000 ft. gas, 1,835 ft; drlg., gumbo, 2,064 ft.
Vaughan et al's No. 1 M. Ackley ... Location.
Pete Woodley's No. 1 J. Boyle ... Drlg., 760 ft.
Vaughn et al's No. 1 B. Woodley, C SW NW, Sec. 21, Blk. 24, H. & G. N. Sur. ... Location.
Vaughn et al's No. 1 A. Wood, C NW SW, Sec. 21, Blk. 24, H. & G. N. Sur. ... Location.
Kaufold et al's No. 1 E. R. Wallace ... Spudded.
Watchorn O. & G. Co.'s No. 2 Binkley & Calne, Sec. 93, Blk. 24, H. & G. N. Sur. ... Cmt. 8¼-in csg., 1,840 ft.
Woodtex Oil Co.'s No. 2 C. A. Linkey ... Drlg., G.W., 2,125 ft.

Big Progress Made in Deeper Drilling

Good Record Made in Well Being Drilled in Oklahoma. String of Casing Set at 6,780 Feet. Much Hard Formation

By J. L. Dwyer

Rearing its structure 110 feet above the flat prairie land, and standing almost within the shadow of the capitol of the State of Oklahoma, an oil field derrick marks the spot where the deepest well in the Mid-Continent oil belt is being drilled.

This test is being drilled jointly by the Cromwell Oil & Gas Co., which is headed by Joe I. Cromwell, discoverer of the pool which bears his name, and Wirt Franklin, one of Oklahoma's prominent independent producers of Ardmore, Okla. The well is in Section 15-23-3w, Oklahoma County.

Since the deeper formations have been uncovered, the owners of the test have declined to divulge any information of the test, and it bears the "mystery" label. It has been reported, however, that the last string of casing was run at a depth of 6,780 feet, and it is assumed that the total depth of the test is slightly deeper than this figure.

Once more in the petroleum history of Oklahoma, a new page must be turned, and new records must be written. The records will include the names of the owners of this test well, individuals who have followed the trail of petroleum in many corners of Oklahoma. To drill a hole 1⅓ miles deep through the various rocks beneath the surface, and to seal off several series of waters found as the drill progresses, is in itself a notable engineering achievement; although we of the oil fields are prone to neglect this aspect because it's all a part of the day's work; there is much to be done, and it is done with little talk, and no boasting.

Interesting Areas

The Cromwell-Franklin well is most interesting, and is located in a section of Oklahoma which has within the past two years been the scene of a very close observation. Four years ago, only a limited amount of information regarding this part of the State was available, but today, the magnetometer and many instruments known to science have been used in making surface and subsurface explorations in Oklahoma, Cleveland, McClain, Garvin and Canadian Counties. Possibly they have furnished knowledge which may lead to one answer to the question "Where shall we turn for oil when Seminole is over?"

In the picture accompanying this story, the outline of a derrick may be seen in the background to the left of the more prominent rig. The rig in the distance is the location where the first test was drilled by the Cromwell Oil & Gas Co. over one year ago. It found some oil at a depth of 4,300 feet in a stratum which was later identified as being one of the Hoover sands found in the Tonkawa Field, 70 miles to the northeast in Kay County. At Tonkawa, the Hoovers are found from 1,800 to 2,400 feet, and calculating the difference in depth between the Tonkawa Field and the first Cromwell well, it was estimated that if the Wilcox formation were to be tapped at Oklahoma City, a test of at least 6,000 feet would be required.

The first Cromwell test had an initial production of approximately 50 bbls. daily in the Hoover sand, and this showing led to the thought that the Wilcox structure in this locality might be explored with good results. Then arrangements were made for a real deep test, with the result mentioned above.

If there be any one single word in the oil field language which has displayed a most marked elasticity in meaning, it is the word deep. Five years ago a 4,000-foot test was regarded as a most hazardous risk, and on a certain wildcat well in Hughes County, when the owners decided to run 3,000 feet of 8-inch casing, the feat caused unlimited talk, and every possible precaution was taken in making the preparations for casing the well at this depth. Extra rig bracing was used until the legs, girths, and cross braces, were almost completely covered. What a change five years have made in Oklahoma drilling. Today in the Seminole Field, some 4,300-foot wells have been drilled and completed in 56 days, while the average time required for this type well is 90 days. Less than five years from the time of the Hughes County well, we find the owners of the Cromwell-Franklin test running 4,700 feet of 8¼-inch casing with scarcely a comment.

On the ground in front of the derrick shown, is the full string of drill pipe which had been taken out and prepared for removal to some other spot for further service. This amount of drill pipe would have completed two wells of the Hughes County type, and still have some left over.

Splendid Drilling Time

The Cromwell-Franklin well made wonderful drilling time in its path from the grass roots down. The well was spudded July 15, 1927, and in less than six months had reached the spot where the last string of rotary pipe was run, probably 6,780 feet. The first 4,700 feet of hole was drilled in exactly 50 days' drilling time, or an average of almost 100 feet of hole per day. The surface formations (after soil) consisted of 2,000 feet of red beds and gray lime, with a scattering of shale streaks and a few breaks of sand. It has been said that about 65 per cent of the first 4,700 feet of drilling was done in rocks of the harder type which necessitated rock bits. Exactly 40 sets of rock cones were required to drill this amount of hole, and for the softer formations, the K-P straight-hole bit was used.

After the first string of casing had been set and cemented the well was drilled on to 6,780 feet in 76 days' drilling time, and for this work, 38 sets of rock cones were used. The actual drilling time necessary to put the well to this depth was 126 days, and the balance of the time was taken up by shutdown and waiting for cement to set as well as the miscellaneous delays common to the exploratory work of this nature.

It has been reported that in the last part of the well, some 400 feet of green shale was encountered, and the report stated that this was not the regular Sylvan shale.

When the 5,000-foot level was reached, the turnbuckle derrick was reinforced with double sway braces shown in the picture. Two 100-horsepower boilers were used throughout the operation, carrying 200 pounds pressure of steam. When the tools reached the last section of the hole, two hours were required to pull the tools out of the hole, and a similar time necessary to run in again. A round-trip out and back into the hole occupied four hours. The drilling was conducted under the supervision of Harry Franklin, a brother of Wirt Franklin.

When the exact log of the well is available, it will furnish some interesting news for the geological profession, and if samples of the formations have been carefully logged, a much better idea of the subsurface of this section of Oklahoma will be available.

Prior to the drilling of the Cromwell-Franklin well, the deepest well drilled in the Mid-Continent Field was the Roxana Petroleum Corp. and Skelly Oil Co.'s No. 1 Brunkin, in Section 29-23-4w, Garfield County, Oklahoma, northwest of the Garber Field. The Brunkin well found the Wilcox sand 6,133-58 feet, and was last reported making 166 bbls. of oil and 5 bbls. of water from this depth. The Cromwell-Franklin well exceeds this depth by approximately 622 feet. It has set another mark to be removed when some ambitious company or individual feels the urge.

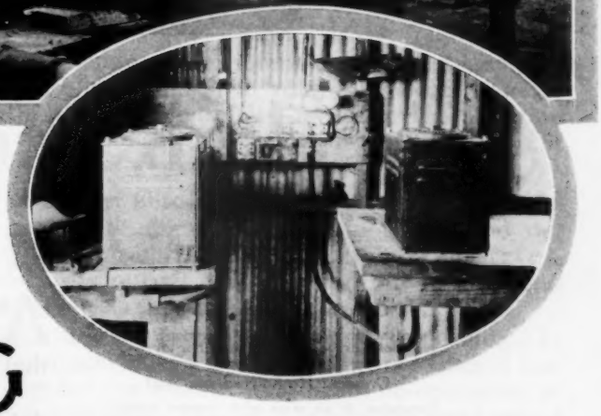
The Mid-Continent's deepest well. Franklin and Cromwell's test near Oklahoma City, which is now 6,820 feet deep.

The crew that "drilled 'er round and deep."

NATURALS STRONGER IN CALIFORNIA OIL MARKET

LOS ANGELES, Calif., Feb. 4.—The natural gasoline spot market has undergone a decided change during the last few days. While about two weeks ago natural gasoline was a drug on the market, natural gasoline manufacturers having to sell at ridiculously low prices in order to move their distress gasoline, at the present time spot natural gasoline is almost impossible to buy. The situation, though probably a temporary one as yet, gave certain refiners who did not have their needs contracted for, a rather hard blow. There is apparently no appreciable amount of natural gasoline available at present. It is reported that the reason for this decided change in the market is that a cargo is being made up which has taken all the surplus natural gasoline that was going begging a short time ago.

The market in general remains unchanged. The retail gasoline situation around Los Angeles is showing a slight improvement. Signs advertising motor gasoline at very low prices are becoming fewer and indications are that the so-called bootleg gasoline service stations will soon be back on a price 2 cents under that offered by the large companies.



The "Gastributor" or Intermitting Timer.

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"JAT" INTERMITTING CONTROL SYSTEM

A Revolutionary Departure in Air and Gas Lift

Practical oil men scoffed at the idea that putting air or gas on wells *intermittently* instead of steadily would bring as great or greater total production at much reduced air cost. But the "Jat" Intermitting Control System has proved its contention in actual field operation,—has turned those who doubted into boosters.

The photograph shows two field men—H. A. Shaw and E. H. Short, Jr., Farm Boss and District Engineer for a leading company in the Seminole district, who, after carefully checking the operation of the "Jat" System on their lease, affirm that it "does everything that is claimed for it."

Under favorable conditions as many as 12 wells may be operated from one main pressure line. An electric timer operates automatic electro-magnetic control valves situated on the branch lines to the wells, and thus puts the pressure on each well, in turn. Each well, while the artificial pressure is off, fills under its own pressure, and when the artificial pressure returns the oil is forced to the surface.

Proper use of the system takes full advantage of the well's own pressure, however light, and in no instance to date has production been reduced under this system. The system does bring (1) lower compressor costs, (2) lower operating pressures, (3) a saving in gas or air put into the wells, (4) control from a central distributing point, (5) saving in piping and equipment.

First introduced in California, now successfully operating in the Mid-Continent, this revolutionary advance merits your immediate investigation. Demand for information is coming in from all quarters. Inquire of Westcott & Greis, sole distributors east of the Rockies.

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When properly heat-treated, it is possible to obtain great toughness and high physical values; furnished in all sizes and carburizing and straight hardening analysis.

Max-El Socket Steel

The best for swivel and stiff sockets; when properly heat-treated, results in high tensile values coupled with toughness resulting in greatest resistance to battering and wear. Furnished in any size, rounds or in billets.

ASK the drillers and they will tell you that Crescent Hammered Bit Steel is about the toughest steel that ever worked a foot.

Ask the tool makers and the dressers at the rig—they will tell you that Crescent Hammered Bit Steel isn't tough for them. They know how easily it forges, and how readily, with ordinary care, it works under the hammer.

From the viewpoint of the drilling gang, Crescent Hammered Steel means bits that give more hole with fewer dressings; bits that keep their gauge longer.

From the tool maker's angle, Crescent Hammered Bit Steel is easier to heat thoroughly, more readily forged and dressed—making the bit of longer service and true economy.

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Crescent Hammered *Bit & Jar* Steel

THE OUTLOOK FOR 1928

By W. T. ANDERSON

What is the outlook in oil for 1928?

Just a year ago the Annual Number of The Oil and Gas Journal calculated that the "industry can count on a demand for its products in 1927 which will require at least 900,000,000 barrels of crude to supply."

At the same time the estimate was published that the total demand for gasoline during 1927 would approximate 342,500,000 barrels.

The Bureau of Mines report at the close of December just issued shows that the total gasoline demand for the past year was 342,370,000 barrels.

The Government's figures show that the refiners ran to stills a total of 831,880,000 barrels of crude and that 53,400,000 barrels were consumed outside of runs to stills, while the refiners withdrew 7,000,000 barrels of gasoline from stocks to supply the demand; an aggregate consumption that represented over 900,000,000 barrels of crude.

The same methods of computation which enabled The Oil and Gas Journal to estimate with such accuracy the trend during the past year may therefore be employed with like assurance in calculating the outlook for 1928.

We started the year 1927 with 39,023,000 barrels of gasoline in stock. We closed it with only 32,323,000 barrels in storage, a decrease of almost 21 per cent. Despite the inducement of increased demand the refiners were so conservative in their operations that they withdrew from stocks 6,700,000 barrels of gasoline rather than risk adding to burdensome surplus.

The addition to crude stocks during December was the smallest during the entire year. In April, May, June and July the additions ran as high as 8,000,000 barrels, or between 275,000 and 300,000 barrels daily, but beginning in August there has been a decline to December when the addition to stocks amounted to only 28,000 barrels a day.

The increase in crude stocks for the year was 67,293,000 barrels but the increase for all liquid stocks was 64,087,000 barrels, showing that the refiners had withdrawn from their stocks 3,206,000 barrels. Throughout the year they kept their stocks relatively low so that today the number of days' supply is less. Actually the refining industry begins the new year in better shape than for a long time so far as stocks are concerned.

There was an increase of 13.7 per cent in domestic demand for gasoline during 1927. This would probably have been greater had automotive production not been reduced by the Ford shut-down and delayed buying. The export demand for gasoline increased only 2.6 per cent, due probably to the phenomenal 40 per cent increase in exports in 1926. The total increase in consumption, domestic and export, was 12.2 per cent.

The automotive industry is counting on producing 5,000,000 cars this year. It made 900,000 less last year than the year before but this year confidently expects to establish the highest output for all time. This undoubtedly foreshadows an increased demand for gasoline but in making these calculations the estimated increase in gasoline consumption has been kept down to normal, without counting any particular gains in export demand.

Adding a normal increase of 40,000,000 barrels to the total gasoline consumption of 1927 indicates a total consumption for the present year of 382,000,000 barrels of gasoline. With a 40 per cent recovery of gasoline from the crude this would call for 942,000,000 barrels of crude. Consumption outside refining has run about 60,000,000 barrels a year. The two indicate a demand for 1,000,000,000 barrels of crude in 1928.

As pointed out in the Annual Number of The Oil and Gas Journal last year the Committee of Eleven's forecast of a billion-barrel demand by 1930 was ultra conservative. It has arrived two years ahead. Low priced oil may even increase it by encouraging the demand for fuel.

On the side of consumption the industry has nothing to complain of in volume or percentage of growth. Its real complaint is that overproduction of its raw material has so depressed prices that it has not reaped a normal return on its products.

The case of kerosene is suggestive. During the past year both domestic and export demand declined but through improved manufacturing methods the output was kept within bounds and prices were relatively steady.

The crude production situation is improving. It might certainly have been much worse than it has been but for the effective resort to co-operation in the Seminole area. It is easy now to see what would have happened had it not been for that movement, and the most reluctant to approve it have been convinced by actual demonstration.

The industry has been given a breathing spell between peaks of production. The next peak is expected in June. Meantime it may be expected that there will be a tightening of the crude market since withdrawals are already being made. Considering the present price and the cost of storage oil will be held where possible while refiners without production will be in need of crude.

An advance in price would ordinarily follow such a situation. Fear of starting a rush of wildcatting will be minimized by the potential fields in sight but unless all signs are at fault there will be much more drilling than there was in 1927. West Texas cannot be a much greater factor until the pipe lines provide access to the market. A billion-barrel demand is assured and it must not be forgotten that there is always a doubt about potential production.

The industry cannot afford to take any chances on supply. Its whole investment rests upon ability to meet demand. It has six months' stocks in storage but with demand growing 100,000,000 barrels a year there can be no prolonged halt in the search for oil. Seminole is passing. West Texas may hit its peak in midsummer. California also is expected to touch its 1928 high about the same time.

After these, what? Only the drill can tell.

Meanwhile the demand for a billion barrels will continue growing at the rate of 100,000,000 barrels a year.

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More Power
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By reason of the very high coefficient of friction "Tentacular" Belting can be run in most cases with practically no tension in the slack strand. This results in a very low strain in the Dick Balata Belt, of which the backing is made, as well as a large reduction in the effort borne upon the axles.

"Tentacular eliminates the use of idlers and will render satisfactory service with an arc of contact as low as 140 degrees.

"Tentacular" is more economical than ordinary belting, in that its use will reduce the width of the belt formerly used, and the initial cost becomes trifling when considered in the light of months and years of satisfactory service, when all of the troubles in so-called difficult drives have disappeared, when, in a general way, the total efficiency of the transmission has been materially increased, including saving of power of from 5 to 10 per cent.

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"Tentacular" Balata Belt, which is having a tremendous success wherever used, consists of Dick Balata Belt to which the under surface has attached narrow longitudinal strips of specially made soft and spongy chrome tanned leather, held in position by means of hollow brass rivets, strongly clenched well into the chrome leather.

The hemispherical pockets in the leather strips, having the inside of the hollow rivet as bottom, act as suckers during use and aid the adhesion of the belt to the pulley. This adhesion of the belt is already greatly increased by the presence of the highly adhesive chrome leather strips. The spacing between the strips allows any air film, a common cause of slippage, to be squeezed out.

This combination of the Dick Balata Belt, having high tensile strength, the soft spongy chrome leather with its remarkable power of adhesion, and the sucker pockets result in a pulling power very near that of a chain drive without its disadvantages.

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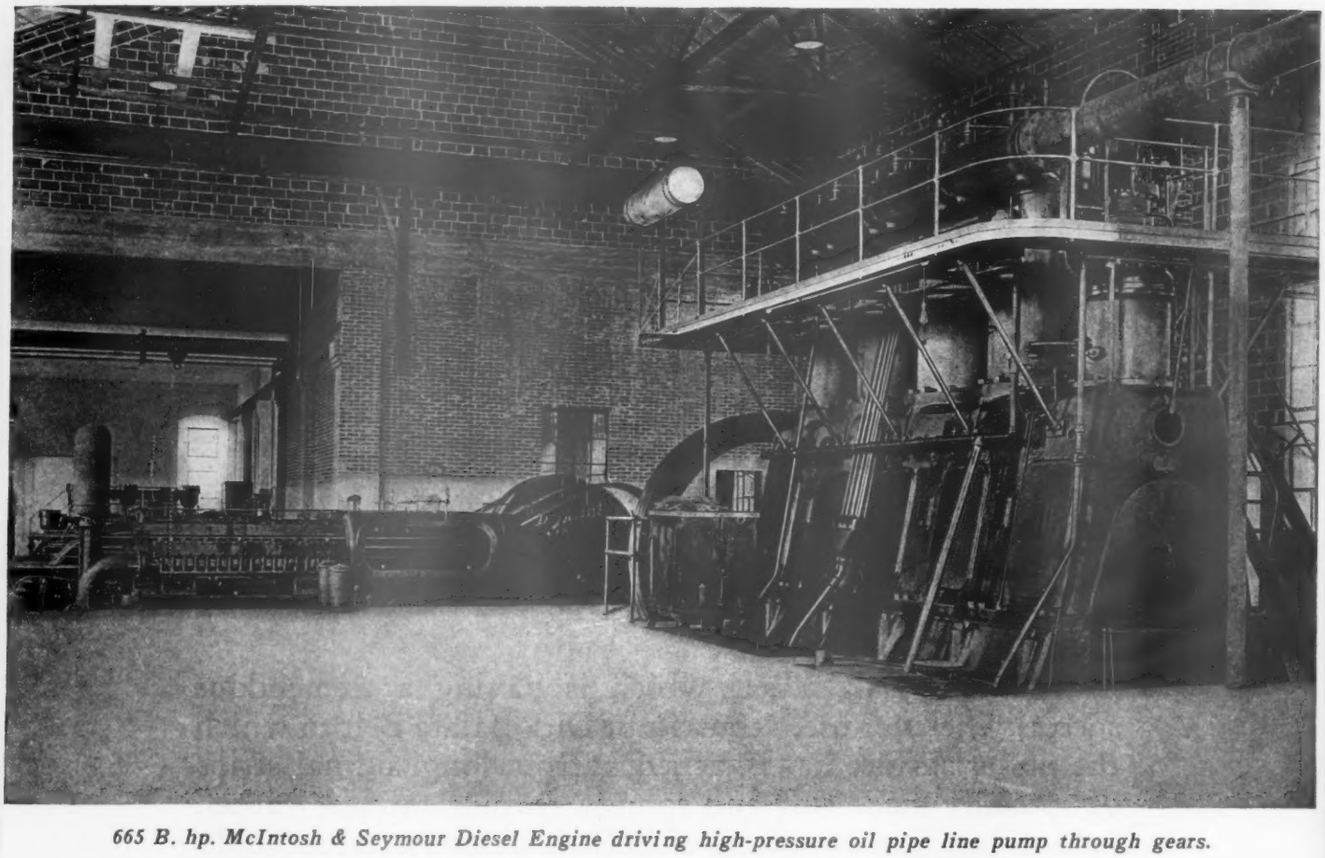

665 B. hp. McIntosh & Seymour Diesel Engine driving high-pressure oil pipe line pump through gears.

Achievements in many fields entitle McIntosh & Seymour Diesel Engines to first consideration as pumping power

THAT McIntosh & Seymour Diesel Engines offer *adequate* and *dependable* pumping power at exceptionally low cost and with least operating attention must be inferred from the distinguished service records which they have made in many isolated plants of leading pipe line companies.

As further evidence of McIntosh & Seymour superiority and reliability, five of the eleven steamship conversions on the 1927 program of the United States Shipping Board will become McIntosh & Seymour motorships, and the total horsepower allotted to McIntosh & Seymour for that year and purpose is far greater than given to any other Diesel engine builder.

The New York Central Railroad utilizes McIntosh & Seymour units to drive the most powerful Diesel-electric tug in New York Harbor, recently put a McIntosh & Seymour Diesel Engine into the first all-American Diesel-electric rail car, and will soon introduce the first American Diesel-electric passenger locomotive for main line passenger service. The generator in this locomotive will be driven by a McIntosh & Seymour Engine.

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McINTOSH & SEYMOUR DIESEL ENGINES

Crude Production 903,850,687 Barrels

An Increase of 128,289,412 Bbls. Over the Output of Previous Year. Great Gains in Oklahoma and Texas

By James McIntyre

The oil regions of the United States produced 903,850,687 bbls. of crude oil last year from 319,027 wells, an average of 7.76 bbls. per day per well. This was an increase of 128,289,412 bbls. over the production of 1926, while the average per well increased from 6.7 bbls. per day, or 1 bbl. and a fraction per well. The average in 1925 was 6.84 bbls. per well.

The production of 1927 exceeded all estimates. A year ago some intrepid soul predicted that 900,000,000 bbls. of oil would be produced in 1927, but most of the estimates ran no higher than 875,000,000 bbls. Either quantity would have been more than sufficient. While production in December was down to about the level of December, 1926, a vast surplus was brought to the surface in the 12 months that separated the two periods, and 67,106,000 bbls. of crude was run to storage in the course of the year.

PRODUCTION IN THE UNITED STATES IN 1923, 1924, 1925, 1926 AND 1927

	1923 Bbls.	1924 Bbls.	1925 Bbls.	1926 Bbls.	1927 Bbls.	No. of Oil Wells Dec. 31, 1927	Av. Dly. Prod. per well in 1927 Bbls.
California	263,728,895	230,063,117	230,147,342	224,117,013	230,751,463	11,284	56.02
Oklahoma	165,013,685	176,206,397	173,270,063	177,651,198	276,022,024	61,578	12.28
Texas	131,997,138	135,361,378	144,783,451	172,545,278	220,030,512	21,726	21.74
Arkansas	38,647,863	48,167,912	478,407,138	58,729,606	40,411,375	4,688	23.62
Kansas	29,812,123	29,571,551	38,151,622	41,346,511	41,943,577	19,648	5.89
Wyoming	42,386,704	39,251,070	29,229,303	25,465,553	20,983,675	3,468	16.58
Louisiana	24,708,993	20,638,051	21,537,564	24,283,144	24,330,954	3,906	17.07
Illinois	8,720,125	8,041,000	7,862,000	7,770,500	6,873,000	16,975	1.11
Pennsylvania	7,276,850	7,529,100	7,831,200	8,971,300	9,642,000	78,000	.34
Ohio	7,080,125	6,797,000	7,175,000	7,307,500	7,542,500	39,500	.52
Kentucky	8,066,000	7,396,900	6,770,000	6,297,200	6,590,000	13,585	1.33
West Virginia	6,400,458	5,924,000	5,780,000	5,962,400	6,033,000	20,200	.82
Montana	2,677,717	2,785,724	4,122,653	7,744,605	5,171,883	964	14.07
New York	1,250,100	1,482,000	1,660,000	1,934,200	2,237,000	14,100	.43
Colorado	62,500	391,922	1,171,625	2,776,442	2,722,670	151	49.40
New Mexico	.....	81,800	1,096,617	1,695,645	1,214,254	241	13.80
Indiana	1,040,500	936,000	828,000	785,200	852,500	2,665	.88
Tennessee	7,500	6,300	23,000	44,200	62,200	36	4.73
Michigan	.....	.....	.....	103,000	436,100	312	3.83
Miscellaneous	.....	.....	.....	30,780	.....	.....	.....
Total	738,877,176	720,731,222	750,846,578	775,561,275	903,850,687	319,027	7.76

California's Big Year

California has seen a greater production in only one other year. The State produced 230,751,463 bbls. last year as against 224,117,013 bbls. in 1926. In 1923 it produced 263,728,895 bbls. and when that flush began to go predictions were freely made that the State had seen its best days as a producer of oil and a steady and rapid decline was predicted. Instead of dropping to second or third place it produced over 230,000,000 bbls. in 1924 and 1925 and over 224,000,000 bbls. in 1926 and continued at the head of the column and then came back with better than 230,000,000 bbls. last year. The coming year may see an even higher production in the state than that of 1927 and a peak of no less than 675,000 bbls. a day is predicted by very conservative oil men. One estimate has been made that the State will hit 700,000 bbls. a day and that it will average 625,000 bbls. a day through the year, and this by a very conservative Mid-Continent oil man who went to California to study the situation. California appears to be so rich in oil that the quantity to be recovered depends upon the desire of the operating companies to drill for it. Its deeper sand possibilities are great and it must be seriously considered in any estimate on this year's production.

Oklahoma's Greatest Production

Oklahoma resumed its position as the leading oil producing state after taking second place to California for several years. The State produced 276,022,024 bbls. of oil against 177,651,198 bbls. the previous year and may well be blamed for all the trouble caused to the industry by reason of the low average price of oil through the year. The Seminole Field alone produced 135,951,098 bbls. of Oklahoma's total and was the only oil area in the State that showed any appreciable gain, most of the others suffering losses in output. The Seminole Field produced nearly half the oil brought to the surface in the State during the year, 49.3 per cent to be more exact. The field reached its peak on July 30 when it produced 527,400 bbls. but on the closing day of the year was producing around 333,000 bbls. The production of Oklahoma at the beginning of 1928 was 701,000 bbls. a day or at the rate of 255,865,000 bbls. per year but unless new but as yet undeveloped pools in the Seminole area are of first order, the State is not expected to maintain the high average at which it began the year. Much depends upon results this year in Townships 8-5 and 8-6, west of the Bowlegs Pool so far as may be judged so early in the year, but there are a number of new producing spots in the big Seminole area that may prove dangerous if not handled carefully by the operating companies. Aside from the Seminole area there was nothing in sight of a disturbing character.

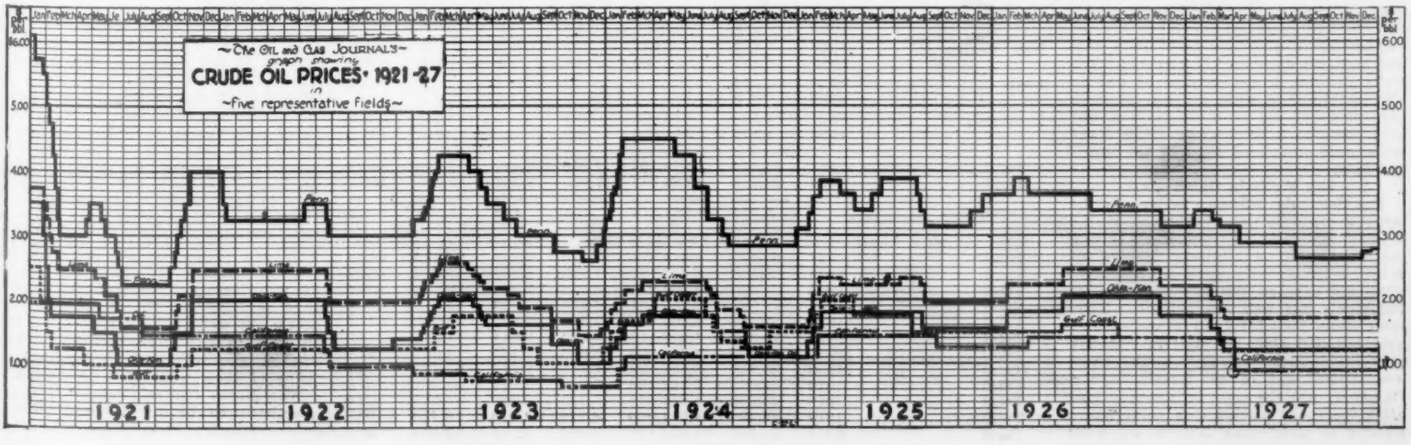
Texas' Substantial Gain

Texas was third in production last year with 220,030,512 bbls. as against 172,545,278 bbls. in the previous year. The West Texas fields contributed 49,689,657 bbls. of this; the Panhandle 40,089,780 bbls.; North Texas, 34,605,076 bbls.; Central Texas, 21,606,256 bbls.; East Central Texas, 13,162,026; Southwest Texas, 12,331,498 bbls. and the remainder 48,546,219 bbls. came from the Gulf Coast Texas fields. The Upton-Crane County Pools produced 29,583,131 bbls. of the oil in West Texas, and Hutchinson County produced 32,240,493 bbls. of the Panhandle total. Spindletop supplied 21,264,935 bbls. of the Gulf Coast total. The Yates Pool in Pecos County with a tremendous potential production was kept pinched in and yielded a total of only 5,250,173 bbls. It was estimated that West Texas could easily have produced 500,000 bbls. a day in December but it was kept down to 267,500 bbls. Winkler County, another dangerous field—that is dangerous to the peace of mind of operators who are not in that field—did not reach a production last year that would entitle it to a place among the major pools of the year, but there is no doubt about it occupying a high place in the major pool list this year along with the Yates Pool and the other big ones in that region. The Big Lake Pool fell off from 10,978,135 bbls. in 1926 to 8,668,381 bbls. in 1927. The production of West Texas this year will depend largely on the desire of operators to recover it. It can easily cause another year of demoralization. At the beginning of the year the number of wells drilling in the most promising counties was being kept down to a very reasonable number giving promise of a year of conservative operating if conditions require it.

Kansas Displaced Arkansas

Kansas displaced Arkansas in fourth position with a production of 41,943,577 bbls., a slight gain over its mark of 41,346,511 bbls. the year before and the highest production it has shown in five years at least. Sumner County, with its Churchill and Oxford Pools was responsible for better showing. In 1925 Sumner County produced 3,463 bbls.; in 1926, 1,248,088 bbls., and last year 6,708,275 bbls. This big gain more than offset the natural decline in the older fields of the State. The largest pool in the State in 1926, Teeter-Pixley in Greenwood fell from 6,775,808 bbls. in 1926 to 3,958,357 bbls. At the beginning of the year it did not appear probable that the production of Kansas this year could be maintained at its 1927 standard by the pools already in sight. Lost Springs in Marion County was the high light at the close of the year as the Oxford Pool was pretty well defined by that time. Lost Springs, however, was not seriously regarded, yet there was no reason to believe that it would

(Continued on Page 230)



Big Decrease in Completions in 1927

But the Oil Wells Averaged 340.4 Bbls. in Initial Production, a Record Exceeded Only in 1923

By James McIntyre

It will surprise most oil men to know that notwithstanding the tremendous production of crude oil in the United States in 1927, the initial production total was far below that of 1923, which was another year of excessive crude output from flush fields. It is easy to explain why last year's total initial output was below that of 1923, while the total production for the year was far in excess of that of the same year. The Seminole Field had much to do with it. In that field initial production did not as a rule, fairly represent the capacity of the wells to produce. The subsequent use of the air-gas lift brought to the surface a production day after day far in excess of the natural first-day production of the wells. In 1923, the opposite was the case in some of the biggest fields. It will be remembered that in Powell, Texas, for example, wells of from 15,000 to 20,000 bbls. initial production were reported while wells from 5,000 bbls. upward were common. These big wells were not permitted to flow at capacity for fear of salt water intrusion and after their first-day test were pinched in. Where they were permitted to flow wide open their production fell off very rapidly. Neither in Seminole last year nor in Powell and some other fields in 1923 did initial production fairly tell the story of the productive worth of the wells.

Last year's record was 24,143 completed wells including 14,442 oil wells, 2,491 gas wells and 7,210 dry holes. The total initial production was 4,918,197 bbls., or an average of 340.4 bbls. per oil well. The record of 1923 was 24,438 completion, including 16,206 oil wells; 5,883 dry holes and 2,349 gas wells. The initial production was 6,105,100 bbls. or an average of 371 bbls. per oil well.

Many Idle Tools

The number of wells completed last year was less than in 10 out of the past 12 years. Only in 1921 and 1917 were there fewer wells brought in, while the number of oil wells completed was less than that in any year in the past 12 years.

The influence of price on field operations is plainly shown in the accompanying tables. In 1926, with a fairly high price for oil 29,319 wells were completed. In 1919 and 1920, when the crude market was high the completions numbered 29,079 and 33,972 respectively. In 1921, with the market at bottom only 21,775 wells were drilled to completion and last year with a low market prevailing most of the year only 24,143 wells were brought in.

The overproduction situation with its attendant low crude market affected most of the producing divisions of the country in 1927, so far as field work was concerned. At the opening of 1927, there were 983 rigs up and 4,908 wells classified as drilling in all the fields east of California. At the opening of 1928, this had been cut down to 771 rigs and 3,418 wells drilling, a net decline of 212 in rigs and 1,590 in wells drilling, while in the course of the year the drilling was kept down to a level where 5,176 fewer wells were completed than in the previous year.

Big Wells in Oklahoma

The Seminole influence is seen in the large average initial production of the wells completed in Oklahoma. During the year 4,513 wells were finished of which 2,562 wells were oil producers with an average initial production of 769.4 bbls. per well. In 1926, the 5,352 completions included 3,119 oil wells which averaged 316 bbls. per well in first-day production. The average in 1927 was over twice that of the previous year. Oklahoma was the main influence in lowering the crude market to a point where owners of more than 250,000 oil wells made little if any profit during the year. The discovery of the Seminole City, Bowlegs and Searight Pools in Seminole County and the Earlsboro Pool in Potawattomie County occurred in 1926, but these pools saw their main drilling development in 1927 and were followed by the opening of the Little River Pool in the same territory and notwithstanding all the efforts made to curtail drilling in that area there were over 600 wells drilling at one time in the year. The effect of the tremendous production of the Seminole district and the consequent low market price of crude oil was the postponement of wildcat operations elsewhere and of development work on already productive leases especially where deep drilling was necessary and the returns in crude oil could not be expected to be large. The result of this falling off in operations outside of the Seminole area was a decline of 839 completions as compared with the work in 1926. Outside of the discovery of the various pools opened in the Seminole country extensions and deeper sand discoveries in the Sholom Alechem district in Carter County and the completion of Oklahoma's deepest producing oil well in Section 30-19-4w, Logan County, and an east extension to the Burbank Field there was little of interest in Oklahoma during the year.

Two New Pools in Kansas

Kansas showed a decided falling off in field work and only two pools were opened in the course of the year, one in the town of Oxford in Sumner County and the other the Lost Springs Pool in Marion County. The Oxford Pool developed into a good producing area but the Lost Springs Pool had not been developed sufficiently by the close of the year to indicate its worth. The average initial production of the oil wells completed in Kansas last year was 143.4 bbls. per well as against 119.1 bbls. in 1926.

Great West Texas Pools

The West Texas fields were especially prominent in 1927. There were 915 completions, of which 666 were oil wells which yielded an average initial production per well of 1,590 bbls. In as much as the largest wells in the Yates Pool in Pecos County were not permitted to flow 24 hours because of a curtailment of pipe line runs the real story of what West Texas could have done in initial production was not told. In volume of new oil produced the field was next to Oklahoma.

The Louisiana and Arkansas fields, Texas Panhandle and southwest Texas enjoyed a particularly big year as gas producers. There never was as much natural gas in sight in all the history of the oil and gas business as there was at the close of 1927, and in addition to the discovery and development of the gas resources of the areas named, millions were involved in the investment in lines built and projected to take the gas to market. Thus far distant cities like Denver, Memphis, Omaha and other large places outside the oil and gas region are promised natural gas for fuel, light and power.

Almost as many wells were completed in the Texas Panhandle last year as in 1926, but the big development of that region in 1926 came late in the year. The average oil wells in the Panhandle started off at 285.8 bbls. while in 1926 the average initial production per oil well was 486.6 bbls. Oil operators in the region had looked forward to a year of much work and large profit, but reductions in the market price in the course of the year discouraged a normal development campaign.

California's Busy Year

California completed nearly as many wells in 1927, 1,182 as against 1,197, and the average initial production per well was greater. The 901 oil wells completed last year averaging 532.6 bbls. per well while the year previous the 913 oil wells finished averaged 428.9 bbls. in initial production.

Gulf Coast Fields

In the Gulf Coastal area the year was devoted to the search for salt domes of which a number were located to be developed in the future. There was a falling off of 107 in completed wells as compared with results in 1926. The number of oil wells was 664 as against 822 the previous year, and the average initial production per well fell off from 871.9 bbls. in 1926 to 785.6 bbls. in 1927.

Southwest Texas field work increased from 681 completions in 1926 to 868 in 1927, but there were 394 dry holes last year as against 147 the previous year. It was largely a natural gas year in that territory and the initial production of the oil wells fell off from 204.6 bbls. in 1926 to 42.6 bbls. in 1927. A total of 181 gas wells were completed and many of these were of large volume.

The North Central Texas fields were overshadowed by the interest taken in

(Continued on Page 202)

SUMMARY OF COMPLETED WORK IN ALL THE FIELDS OF THE UNITED STATES IN 1927 AND 1926

		Comp.	Initial Prod. Bbls.	Dry Holes	Gas Wells	Oil Wells	Ave. Int. Prod. Bbls.
Eastern	1927	4,724	22,601	462	771	3,491	6.5
	1926	4,940	30,665	572	869	3,499	8.8
Central Ohio	1927	443	2,706	105	260	78	34.7
	1926	522	4,358	138	285	99	44.0
Lima	1927	262	2,973	36	16	211	14.1
	1926	460	7,100	34	13	413	17.2
Indiana	1927	246	3,766	107	31	108	35.0
	1926	230	4,073	62	24	144	28.3
Kentucky	1927	1,157	30,614	330	40	787	38.9
	1926	1,277	14,818	280	48	949	15.6
Tennessee	1927	67	3,953	16	2	49	80.7
	1926	35	3,380	8	1	26	130.0
Michigan	1927	264	4,327	44	3	217	19.9
	1926	105	1,884	16	0	89	21.2
Mississippi	1927	5	.....	4	1	....	...
	1926	8	.....	7	1	....	...
Alabama	1927	0	.....	0	....	.....	...
	1926	2	.....	2	....	.....	...
Florida	1927	0	.....	2	....	....	...
	1926	....	.....	....	....	....	...
Illinois	1927	161	2,244	65	8	88	25.5
	1926	363	7,937	125	7	231	34.4
Kansas	1927	1,333	98,253	569	79	685	143.4
	1926	2,338	173,674	784	96	1,458	119.1
Oklahoma	1927	4,513	1,971,081	1,443	508	2,562	769.4
	1926	5,352	986,502	1,735	498	3,119	316.0
N. C. Texas	1927	3,711	285,414	1,646	100	1,965	145.3
	1926	5,738	353,320	2,195	108	3,435	102.8
E. C. Texas	1927	89	4,856	72	3	14	346.9
	1926	175	62,046	88	4	83	725.6
East Texas	1927	93	349	20	62	11	31.7
	1926	....	.....	....	....	....	...
West Texas	1927	915	1,058,948	243	6	666	1,590.0
	1926	518	137,571	138	1	379	363.0
Panhandle	1927	804	178,054	87	94	623	285.8
	1926	831	371,789	35	32	764	486.6
Gulf Coast	1927	1,145	521,596	465	16	664	785.6
	1926	1,252	716,695	430	....	822	871.9
S. W. Texas	1927	868	12,503	394	181	293	43.5
	1926	681	85,027	147	118	416	204.6
North Louisiana	1927	726	40,223	297	177	252	159.6
	1926	1,046	82,021	321	118	607	135.1
Arkansas	1927	359	14,587	143	46	170	85.8
	1926	1,028	74,224	226	65	737	100.7
Montana	1927	493	29,446	196	54	243	121.2
	1926	450	52,595	155	29	266	197.7
Wyoming	1927	339	133,804	52	19	268	499.3
	1926	493	96,043	78	17	398	231.3
Colorado	1927	120	13,040	53	7	60	217.3
	1926	89	16,455	38	5	46	357.7
New Mexico	1927	113	2,944	66	6	41	73.0
	1926	187	9,990	66	1	120	83.3
Utah	1927	14	.....	13	1	....	...
	1926	2	.....	1	1	....	...
California	1927	1,182	479,905	281	....	901	532.6
	1926	1,179	391,620	284	....	913	428.9
Total	1927	24,143	4,918,197	7,210	2,491	14,442	340.4
Total	1926	29,319	3,683,787	7,965	2,341	19,013	193.7
Difference		5,176	1,234,410	755	150	4,571	246.7

Record of Past 12 Years

Total	1927	24,143	4,918,456	7,210	2,491	14,442	340.4
Total	1926	29,319	3,683,787	7,965	2,341	19,013	193.7
Total	1925	25,623	4,300,356	6,735	2,330	16,558	260.0
Total	1924	21,804	3,255,491	4,950	2,173	14,771	221.0
Total	1923	23,438	6,105,100	5,883	2,349	16,206	371.0
Total	1922	24,658	4,226,119	5,329	2,011	17,318	244.0
Total	1921	21,775	2,827,809	5,013	2,135	14,627	193.0
Total	1920	33,972	3,508,100	7,375	2,272	24,325	144.0
Total	1919	29,070	3,554,486	5,756	2,077	21,237	167.0
Total	1918	25,523	1,613,813	5,733	2,225	17,565	92.0
Total	1917	23,104	1,511,028	4,718	1,916	16,470	92.0
Total	1916	24,453	1,601,170	3,993	1,761	18,699	86.0

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Refinery Prices Slump During 1927

Gasoline at Lowest Levels Since Pre-War Days. Other Refined Products Also Under Average of 1926

By C. O. Willson

The refining industry in 1927 established a record which it hopes it never will be called upon to repeat.

The gasoline prices received by refinery organizations operating more than 300 refineries averaged lower for the year than during any 12-month period since pre-war days. All other products experienced a substantial drop under the average prices prevailing in 1926 so there were no compensating factors during a year in which the refiners were compelled to sell the principal product of their plants at unexpectedly low prices.

In this program of selling their manufactured products at minimum prices the refiners were aided by exceptionally low prices for crude oil, a condition brought about by an overproduction of the refiners' raw material extending over the greater part of the year. For the refining industry as a unit these low schedules for crude oil did not offset the losses in the refined oil sales. For that reason that section of the oil industry which takes the crude oil from the producers and refines it into finished products for the marketing branch experienced in most cases an unsatisfactory year.

The trend in prices was downward during the entire year. Ordinarily the trend in prices is upward, especially in gasolines, early in the year. Optimism regarding the oil situation generally prevails at that period and this feeling is reflected in higher prices for both crude oil and refined products. This situation did not prevail early in 1927. The previous year had been an exceptionally favorable year. However, before the end of 1926 crude oil overproduction had begun to cast its shadow over the industry and the customary New Year expectation of higher prices was not apparent.

Prices on refined products had begun to reflect this fundamental weakness before the year 1926 ended and this weakness continued throughout 1927. The fact there was not an improvement toward the end of the year also is unusual, a condition which was an important factor in the low average prices.

Ordinarily a depression in the crude oil market does not extend over six to nine months. The present depression, however, got under way in the fall of 1926 and it was not yet ended at the close of 1927. Attempts were made during the year to stop the declines in refinery prices and these efforts are reflected in the week to week quotations on some products. These periods were brief and did not materially affect the general downward trend.

Refinery Gasolines

The production of refinery gasoline including the natural gasoline used for blending purposes based on available government figures shows an increased production for 1927 over 1926 of approximately 11 per cent. Imports are still of little significance. The domestic consumption showed approximately the same percentage increase as the domestic production with exports about the same for 1927 as in 1926. A larger increase in exports had been expected but on the whole the total 1927 demand (domestic consumption plus exports) was all that had been expected early in the year.

Refiners over the greater part of the year kept their stocks low considering the increase in demand. In the face of a continued overproduction of crude oil these low stocks failed to aid the market situation. These stocks were still relatively low at the end of 1927. This situation should enable the refiners to take advantage more quickly of any improvement in the crude oil situation.

The accompanying table on average prices shows the gasoline situation for 1927 in comparison with the four previous years. The data on gasoline and other products should not be interpreted as being actual weighted average prices for the several products. The average prices were obtained by taking representative grades for the five-year period in the several refinery areas shown. No effort was made to include the actual production of these areas which would be necessary if an accurate weighted average price was to be obtained for each product. In the case of crude oil the prices shown are the average daily posting for the five-year period.

The comparison of gasoline prices by individual products in the more important refining areas can be obtained by a study of the tables given in the insert table of this issue. This table gives the low weekly quotations on approximately 70 refined products in several areas for the year 1927. It also gives the average prices for the first six months, second six months and year for 1927, 1926 and 1925.

U. S. Motor Gasoline

For example this table shows that the average low price on 58-60 U. S. Motor gasoline in Oklahoma for the first six months of 1927 was 7.22 cents, 6.13 cents for the second six months and 6.67 cents for the entire year. This yearly average compares with averages of 10.31 cents for 1926, 10.55 cents for 1925 and 8.96 cents for 1924.

The situation in Oklahoma in regard to U. S. Motor gasoline was typical for the entire United States. This gasoline is the principal domestic grade and is considered representative of what was obtained by refiners for the bulk of their gasoline.

In Pennsylvania the same grade brought an average price of 9 cents in 1927, 12.73 cents in 1926 and 13.48 cents in 1925. Along the Atlantic Seaboard the average price for this grade was 9.41 cents in 1927, 13.4 cents in 1926 and 14.65 cents in 1925. These prices are for the Bayonne, N. J., group of refiners. In the export market the same grade in cases brought an average of 24.94 cents in 1927, 29.33 cents in 1926 and 28.81 cents in 1925.

In California where markets often do not correspond to those east of that area, refinery gasoline in 1927 followed the general trend. The average price on the U. S. Motor grade in 1927 was 8.73 cents, 11.34 cents in 1926 and 10.17 cents in 1925.

Another situation worthy of note has to do with the continued trend in 1927 toward narrower differentials in the several grades of gasoline. This was particularly noticeable the last half of 1927. In Oklahoma for example there was a period of several weeks in which the 400 endpoint grade only brought one-fourth cent more than the 437 grade and 375 endpoint grade only one-fourth cent more than the 400 endpoint.

It will be noted that in comparison with the 6.67 cent average price for U. S. Motor gasoline in Oklahoma during 1927, the average for 60-62 400 endpoint was 7.21 cents, the 64-66 375 endpoint grade 7.57 cents and 68-70, 360 endpoint, 7.99 cents. In 1925 these same grades of gasoline in the order named brought 10.55 cents, 11.75 cents, 13.10 cents and 13.84 cents.

These narrow differentials as to grades can be explained in part as due to the overproduction situation in the industry. When crude oil and gasolines are both relatively cheap comparative costs in the manufacture of the different grades lose a part of their significance and this is reflected in the prices asked.

Another factor is the perfection of fractionating equipment which has enabled the refiners to secure a closer separation of their gasoline and kerosene streams without any additional manufacturing cost. The extension of cracking facilities also has made it easier for refiners to increase their yields of low endpoint material.

Natural Gasolines

The decline in natural gasolines was even greater than in the case of refinery gasolines. The Mid-Continent and California are the two major areas in the manufacture and sale of natural gasoline. The bulk of the natural gasoline in the Mid-Continent is manufactured in Oklahoma and North and Central Texas and the prices prevailing in these two sections are representative of the entire area.

In North Texas, the average low price for the year was 5.85 cents on Grade A. The average for Oklahoma was the same. This compares with an average for the same grade of 9.45 cents in Oklahoma during 1926 and 9.59 cents in North Texas. Average prices in Oklahoma and North Texas in 1927 were practically the same. The Oklahoma manufacturers have a slight advantage in freight rates in domestic shipments but this is offset by the lower rates of the North Texas manufacturers in export and coastwise shipments. When the export movement is strong the North Texas prices are generally one-eighth to one-fourth cent higher than in Oklahoma. When this market is dull and the sellers have to depend on the domestic demand the Oklahoma prices are the highest.

The trend in natural gasoline prices in the Mid-Continent was not as consistently downward as was the refinery gasoline market. The manufacturers took advantage of a spurt in buying in the late spring and early fall to advance their prices for periods of a few weeks duration and this helped their average price for the year. Average prices for the first half of the year were about one-half cent higher than the average for the last half year.

California Natural Gasoline

California natural gasoline prices also declined in 1927 under the 1926 average. This reduction was not as great as in the Mid-Continent and with an average price of 9.3 cents for the 75-85 370-390 endpoint grade in 1927, the West Coast manufacturers had little cause for complaint considering the prices which prevailed for other petroleum products.

Kerosene and Distillate

Kerosene and distillate, so far as marketing is concerned, have the same general trend and can be considered together. Prices were lower in 1927 than in 1926 the average weekly quotations being about the same as in 1925. In the New York domestic market the average tank wagon price on the 41-43 water white grade was 7.68 cents. This compares with an average price of 9.48 cents in 1926. In Oklahoma the same grade in 1927 averaged 4.61 cents and 7.27 cents in 1926. In Pennsylvania, the average for 43 kerosene for 1927 was 6.46 cents and in 1926, 8.85 cents.

The distillate price situation was practically the same as kerosene. The 38-40 grade of straw distillate in North Texas brought an average price of 3.38 cents in 1927 and 4.57 cents in 1926. The same grade in Oklahoma brought 3.53 cents in 1927 and 4.73 cents in 1926.

In California the 38-40 water white kerosene brought an average of 5.83 cents

(Continued on Page 191)

AVERAGE PRICES—REFINED PRODUCTS

The following table shows the relative price relationship of the principal refined products for the past five years:

East of Rocky Mountains

	Refinery Gasoline	*Natural Gasoline	Distillates and Kerosene	Gas Oil and Fuel Oil	Lubricants	Wax
1927	.0903	.0491	.0512	1.3511	.1384	.0361
1926	.12	.907	.0691	1.7325	.1534	.0528
1925	.1272	.117	.0474	1.533	.1690	.0564
1924	.1112	.081	.0476	1.4217	.1586	.0486
1923	.125	.0865	.0434	1.2679	.1548	.0289

*Mid-Continent only.

**California*

1927	**.0873	.0930	.0630	†.9221	.0983	
1926	.1134	.1455	.0832	.9813	.1223	No
1925	.1017	.1281	.0762	1.4068	.1448	wax
Last Half 1924	.1026	.1036	.0758	1.40	.14	refined

*Prices given are for one grade only except distillate and kerosene (two grades) and lubricants (two grades). Lubricant price does not include bright stocks which are not manufactured in California. **Domestic U. S. Motor grade.

†Fuel oil only. Price at tide water.

Average Daily Price of Representative Grades of Crude Oil for Five Years

	Mid-Cont.	Penn.	Calif.
1927	$1.38	$2.87	$1.00
1926	2.13	3.51	1.37
1925	1.87	3.50	1.35
1924	1.63	3.60	1.06
1923	1.56	3.33	.74

Mid-Continent price based on crude of 36 A. P. I. gravity as posted by the Prairie Oil & Gas Co. The Pennsylvania oil is based on quotations of the Joseph Seep Purchasing Agency for crude in New York Transit Lines. The California price covers Long Beach of 25 degrees gravity.

ACID LINES
BLOW-OFF LINES
FOAMITE LINES
WATER LINES
GAS LINES
TAR LINES
STEAM LINES
CRUDE LINES
RESIDUUM LINES
CAUSTIC LINES
AIR LINES
GASOLINE LINES
NAPTHA LINES
OIL LINES
KEROSENE LINES
HOT OIL LINES
RUN-DOWN LINES

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Merco Compound is put up in 1 and 3 lb. cans, 6, 12 and 75 lb. pails, and 250 and 500 lb. drums, ready to use. We will gladly send you a demonstration can on request.

Merco saves time, trouble and the expense of shut-downs for repacking and overhauling leaky joints. It is distinctly better than the ordinary filler because it is a Metallic Lead Seal that flows on with a brush and fills all voids in pipe threads and gasketed flange faces—packing into a solid mass under pressure and insuring an absolutely tight joint—yet one which may easily be taken apart when necessary. Insoluble in gas, acid, oil, etc.

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American Machinery & Supply Co., OMAHA, NEB.
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Atlas Packing & Rubber Co., SEATTLE, WASH.
V. S. Jenkins Co., SEATTLE, WASH.
B. V. Emery & Co., Inc., TULSA, OKLA.
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Sucker Rods, Pull Rods, Plunger Working Barrels (Pumps, Etc.)

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Donovan Boiler Works
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Rubber Covered and Friction Surface

Jensen Bros. Mfg. Co.
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National Transit Pump and Machine Co.
Power and Steam Pumps

J. P. Ratigan
Grips, Clamps, Beam Hangers

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Gas and Oil Engines, two and four-cycle, Band Wheel and Direct Drive Pumping Powers

Rossendale-Reddaway Co.
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THE genuine animal hair in "Camel Hair" Belting not only contributes to its long life, but gives it a resiliency that cushions equipment from the shocks and strains common to drilling and pumping operations. It also helps to make the Belting impervious to climate, weather and foreign substances, so that it is always sufficiently pliable to cling tenaciously around the smallest pulley. The belt of belts for conditions where ordinary belting is not satisfactory. More economical in the end under any circumstances.

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West of the Mississippi, Stores Everywhere
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Record Slump in Gasoline Tankwagon

Over $300,000,000 Lost to Industry Through Reductions in Retail Markets During 1927. Lowest in Several Years

By W. T. Ziegenhain

The oil industry sustained a loss in revenue from gasoline alone of more than $211,000,000 in 1927, compared to the previous year as a result of lower retail prices, according to the average of the tank wagon gasoline prices in The Oil and Gas Journal's 50 representative cities. This may be taken as a basis for the service station prices are in proportion, usually being 2 cents above the tank wagon price. In addition to the loss in revenue due to lower prices, gasoline taxes were increased so that at the present rate collections amount to $300,000,000 annually. This in turn, will be a depressing factor in bringing prices back to normal.

The excess crude supply brought about largely by the development of the Seminole Field in Oklahoma was no doubt responsible for the lower crude prices and, characteristic of past trends, tank wagon prices followed crude oil prices. The average tank wagon price, free of taxes, for the year of 1927, was 15.46 cents, the lowest it has been for 12 years. The states in the central portion of the United States showed the greatest reductions with substantial reductions shown in all other areas except along the Pacific Coast where prices were already relatively low as we entered 1927. Keen competition caused by the greatly increasing number of service stations and the overlapping of refinery marketing territories brought about through a determined effort on the part of refiners to maintain or increase their gallonage sales, further added to the instability of the oversupplied market.

While the year closed with these same factors operating, retail prices appeared to have reached the bottom and a general feeling exists that but few changes will be made over the next few months and in general the market will slowly strengthen as price wars become fewer in number and as the crude situation clears.

Price Changes

Reviewing the price changes that went into effect over the year, Philadelphia, Pa., and Atlanta, Ga., divided honors as to the number of changes, each showing nine. No set rule could be stated with respect to the number of changes by districts but it may be clearly seen, the states in the area extending through the center of the United States from Canada to the Gulf witnessed the most drastic price changes.

As a basis for the comparison of general price changes by districts, the states were arbitrarily grouped as shown in the accompanying table, No. 3, and the prices in the representative cities in these states averaged for January 1, 1927 and January 1, 1928. The results show a slight increase in the average prices in the states along the Pacific Coast as derived from prices existing in San Francisco, Calif., Portland, Ore., Seattle, Wash. The average for January 1 of last year was 14.0 cents while this year it was 14.3 cents but this fact does not indicate better conditions in the retail market along the coast for the price of 14 cents at the beginning of the year was abnormally low compared to other districts.

For instance the average for the Mid-Western states at the beginning of the year was 19.75 cents, for the Central States 17.2 cents, for the Atlantic and New England States 19.36 cents and the Southern States showed 16.18 cents. With this relationship existing at the opening of the year it was logical that the major share of the price reductions should come in the territories having relatively high prices, a dense population and where material could be supplied from more than one refining point. While all other areas may be said to be affected by these factors to some extent, the Central States including the Dakotas, Kansas, Nebraska, Oklahoma, Texas, Arkansas, Missouri, Iowa, Minnesota, Wisconsin, Illinois, Michigan, Indiana and Ohio showed the greatest price reduction.

Large Decline

The prices in these states were 5.2 cents lower at the end of the year as an average and in some cases reductions amounted to more than 8 cents. In fact, the year ended with prices in this section abnormally low, the average being 12 cents while the averages in the other sections are from 1.9 cents to 4.9 cents higher. In summary, over the year the average gasoline tank wagon prices free of taxes advanced .3 cent in the Pacific Coast states as taken from prices in representative cities, decreased 2.81 cents in the Mid-Western States, decreased 5.2 in the Central States, decreased 2.81 cents in the Atlantic and New England States and decreased 2.27 cents in the Southeastern States.

Middle West Situation

With an over supply of gasoline in the Mid-Continent throughout practically all of the year it was natural for the many companies operating refineries in the Mid-Continent and having marketing facilities in the central states to offer the keenest kind of competition in the retail sales. Coupled with this was the great volume of material offered from the Chicago refineries for consumption in the same area. Transportation rates from the Mid-Continent to the Gulf are still too high to afford a profitable outlet for refined products for export or for consumption along the Atlantic. Furthermore each of these markets were well supplied with material from their own refineries or from the Gulf Coast and California refineries.

While 1927 proved to be a year of

TABLE NO. 1

Average Tank Wagon Prices in Cents in 50 Representative Cities for the Past Five Years.

	1923	1924	1925	1926	1927
Jan. 1	19.21	14.32	13.918	16.133	17.567
Feb. 1	19.53	17.68	16.74	16.213	17.469
Mar. 1	21.53	18.87	19.06	17.267	17.007
Apr. 1	21.46	18.85	18.68	18.517	16.160
May 1	20.56	18.85	18.352	18.487	15.320
June 1	19.95	18.61	18.122	19.607	14.720
July 1	19.89	17.66	19.387	19 697	14.856
Aug. 1	19.11	16.5	19.413	19.697	14.890
Sept. 1	16.24	15.75	16.703	19.581	14.620
Oct. 1	15.77	13.95	15.808	19.167	14 390
Nov. 1	14.45	13.75	15.528	18.187	14.320
Dec. 1	13.66	13.87	15.763	17.607	14.210
Average	18.43	16.555	17.372	18.347	15.461

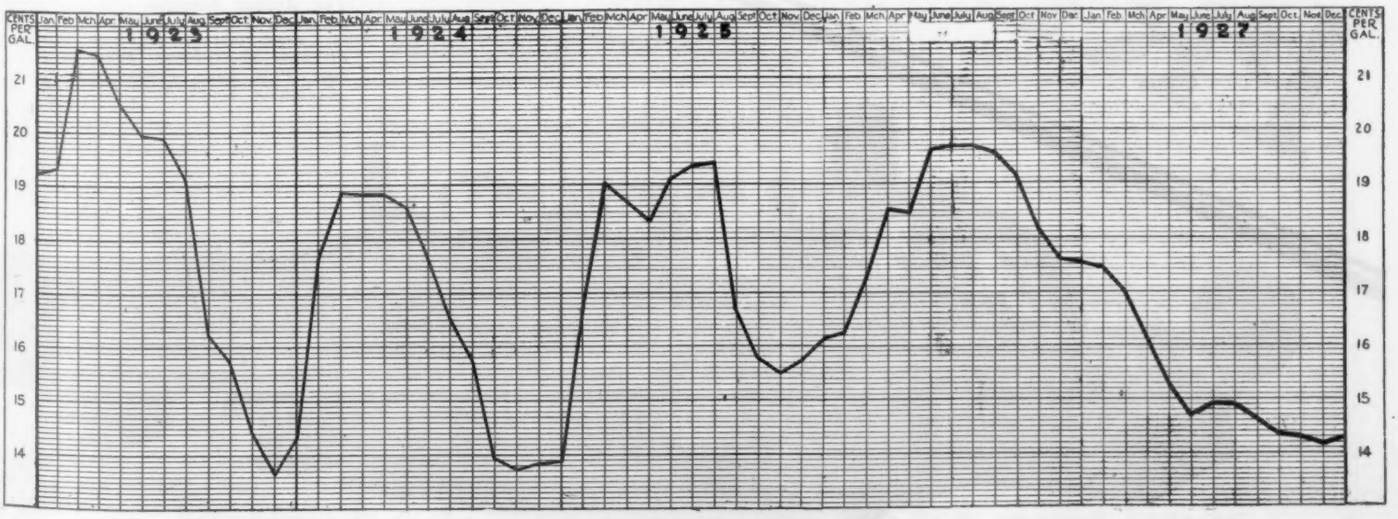
TABLE NO. 2

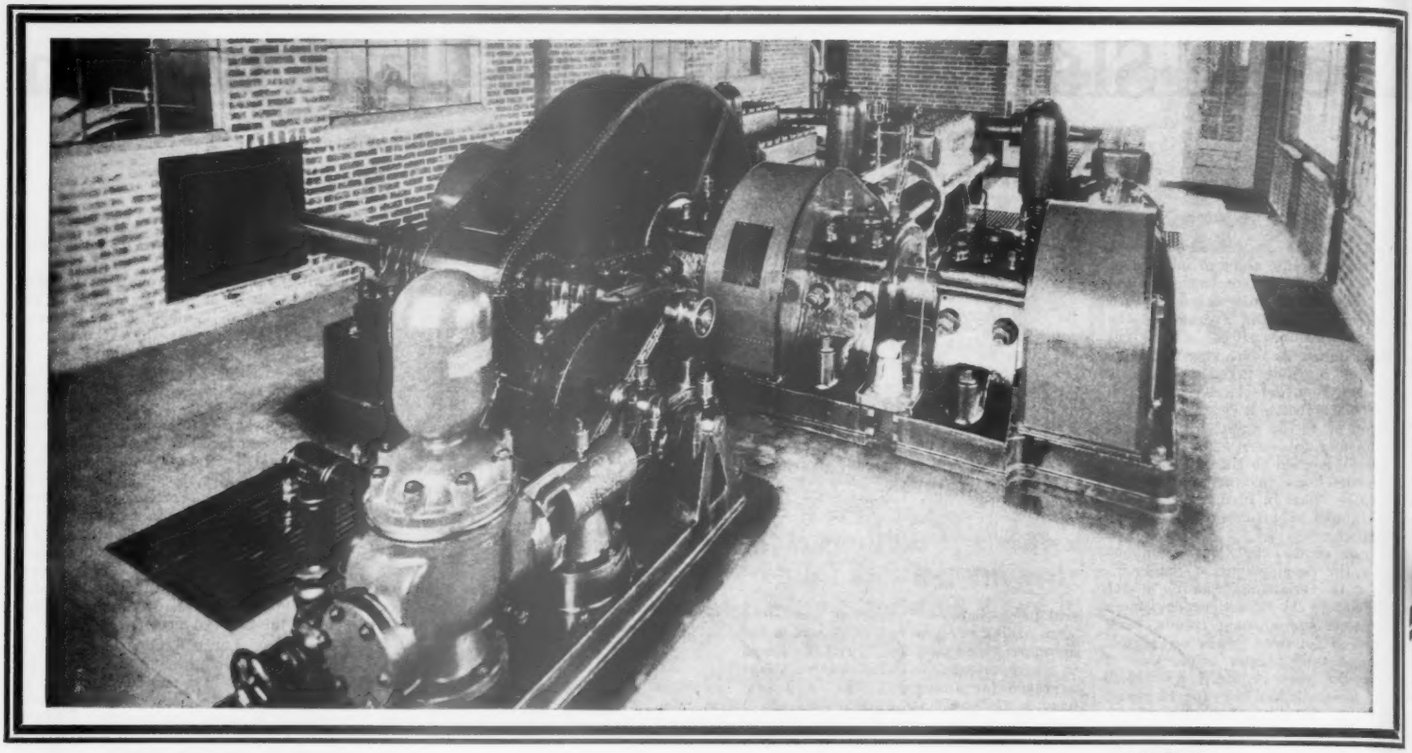
Following are the daily average tank wagon prices at Chicago for the past 14 years, based on dump price of 100 gallons:

1913	14.84c
1914	12.07c
1915	11.04c
1915	17.16c
1917	20.03c
1918	22.27c
1919	22.15c
1920	25.45c
1921	20.28c
1922	20.23c
1923	17.05c
1924	17.68c
1925	16.27c
1926	17.03c
1927	14.71c

TABLE NO. 5—STATE GASOLINE TAX CHANGES DURING 1927

States—	Cents per gallon Jan.1, 1927	Cents per gallon Jan.1, 1928	Date of change 1927
Alabama	2	4	1/25/27
Arizona	3	4	8/11/27
Arkansas	4	5	6/ 9/27
California	2	3	7/29/27
Colorado	2	3	5/ 1/27
Connecticut	2	2	.....
Delaware	2	3	3/24/27
Florida	4	6	7/ 1/27
Georgia	3½	4	9/ 1/27
Idaho	3	4	2/28/27
Illinois	0	2	8/ 1/27
Indiana	3	3	.....
Iowa	2	3	7/ 4/27
Kansas	2	2	.....
Kentucky	5	5	.....
Louisiana	2	2	.....
Maine	3	4	10/29/27
Maryland	3	4	4/ 1/27
Massachusetts	0	0	No tax
Michigan	2	3	9/ 4/27
Minnesota	2	2	.....
Mississippi	4	4	.....
Missouri	2	2	.....
Montana	3	3	1/ 1/27
Nebraska	2	2	.....
Nevada	4	4	.....
New Hampshire	2	4	1/ 1/28
New Jersey	0	2	7/ 1/27
New Mexico	3	5	3/ 7/27
New York	0	0	No tax
North Carolina	4	4	.....
North Dakota	2	2	.....
Ohio	2	3	5/25/27
Oklahoma	3	3	.....
Oregon	3	3	.....
Pennsylvania	2	3	7/ 1/27
Rhode Island	1	2	6/ 1/27
South Carolina	5	5	.....
South Dakota	3	4	7/ 1/27
Tennessee	3	3	.....
Texas	1	3	3/16/27
Utah	3½	3½	.....
Vermont	2	3	6/ 1/27
Virginia	4½	4½	.....
Washington	2	2	.....
West Virginia	3½	4	7/ 1/27
Wisconsin	2	2	.....
Wyoming	2½	3	3/ 1/27
District of Columbia	2	2	.....
Average	2.48	3.14	.....





A 25,000-barrel Prescott Pipe Line Pump at the Ralston, Oklahoma, station of the Oklahoma Pipe Line Company.

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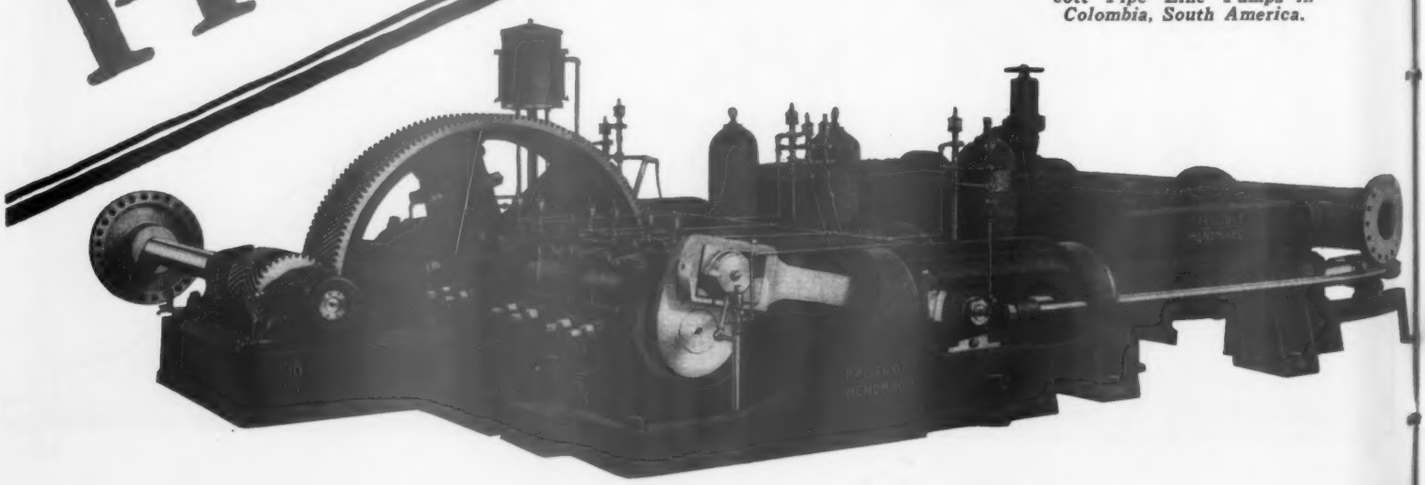
The Andian National Corporation, Limited, of Toronto, Canada, installed eighteen of these 30,000-barrel Prescott Pipe Line Pumps in Colombia, South America.



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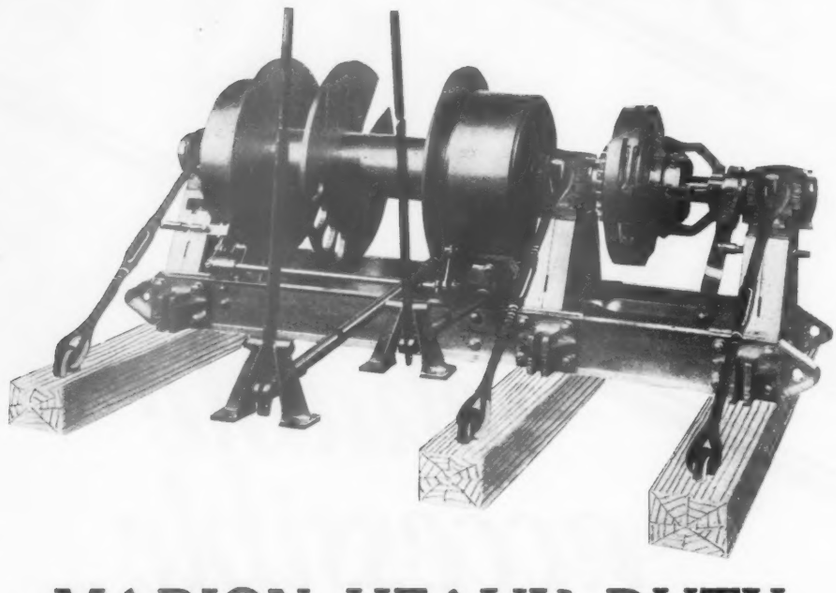

MARION HEAVY DUTY CHAIN DRIVEN SAND REEL

A complete, self-contained Sand Reel, with three bearings. It is mounted on steel frame, ready to bolt down to sills. The drive sprocket wheels are keyed to the crank shaft.

The clutch is a heavy double disc type and very powerful, 26″ in diameter with asbestos lined discs. The clutch has only one adjustment and can easily be regulated in five minutes.

The clutch drum is mounted on Timken Roller Bearings and requires very little attention.

The clutch is driven by 2″ pitch high speed hardened steel roller chain. The service brake is 30″ in diameter by 12″ face. The brake band lining is ¾″ thick, made of metallic asbestos block. This brake is operated by the clutch lever—moved in one direction for the clutch and in the opposite direction for the brake.

There is only one clutch in the Reel and the clutch discs can be removed or changed in two hours.

The Sprocket wheel is split so it can be replaced by removing only six nuts.

The Clutch is perfectly balanced. No vibration when running at high speed.

The Clutch discs are absolutely free when released, permitting the reel to turn at high speed without the clutch dragging.

The reel is bolted to the sills with six anchor bolts and braced with six turnbuckle rods.

A perfectly balanced Reel for deep wells and high speed.

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Marion Machine, Foundry & Supply Company

Marion, Indiana

abnormally low gasoline prices it may also be referred to as a year having the greatest number of gasoline tax increases. While many of these tax changes were the result of legislation passed last year and not made effective until this year, many states grasped the opportunity to raise taxes in view of the low prices, thus making the effect of the higher taxes unnoticed so far as the consumer is concerned. What attitude the public will take in the future with respect to increased gasoline taxes remains to be seen. It is certain, however, these taxes are already plenty high to provide for a reasonable expansion of road building and improvement in most states and if gasoline prices are again raised to a normal level, additional tax legislation will probably receive more general opposition.

Gasoline has become a part of our every day necessities and while this money collected as taxes from it is used for the improvement of roads, is aiding general business and increasing gasoline consumption, it is becoming such an easy

(Continued on Page 187)

TABLE NO. 4—SHOWING GASOLINE TANK WAGON PRICES IN EFFECT DURING 1927, EXCLUSIVE OF TAXES, IN 50 REPRESENTATIVE CITIES, WITH AMOUNT AND DATE OF CHANGES. ALSO THE HIGH AND LOW PRICES FOR 1924, 1925, 1926 AND 1927, WITH GASOLINE TAXES IN EFFECT JANUARY 1, 1924, 1925, 1926, 1927 AND 1928.

	Prices Jan.1, 1927	Changes during 1927									Prices Jan.1, 1928	High and low prices 1927		1926		1925		1924		Taxes Jan.1, 1924	Jan.1, 1925	Jan.1, 1926	Jan.1, 1927	Jan.1, 1928
Birmingham, Ala.	16.0	1/13 18.0	3/8 17.0	4/11 16.0	5/14 14.0	....	....	....	....	....	14.0	18.0	14.0	20.0	16.0	20.0	13.0	20.0	13.0	2.0	2.0	2.0	2.0	4.0
Phoenix, Ariz.	19.0	2/19 16.0	5/4 18.0	7/1 19.0	....	....	....	....	....	....	19.0	19.0	16.0	22.0	19.0	20.0	18.0	20.0	16.0	3.0	3.0	3.0	3.0	4.0
Little Rock, Ark.	15.0	2/25 14.0	3/14 13.0	9/6 11.0	....	....	....	....	....	....	11.0	15.0	11.0	18.0	14.0	19.0	12.0	18.0	13.0	4.0	4.0	4.0	4.0	5.0
San Francisco, Calif.	14.0	3/19 11.0	4/16 9.0	5/4 13.0	7/1 14.0	....	....	....	....	....	14.0	14.0	9.0	16.0	13.0	15.0	13.0	15.0	11.0	2.0	2.0	2.0	2.0	3.0
Denver, Colo.	18.0	3/2 17.0	3/23 15.0	5/1 14.0	5/15 15.0	6/8 16.0	9/20 14.0	9/28 13.0	....	....	13.0	18.0	13.0	20.0	16.0	20.0	12.0	19.0	12.0	2.0	2.0	2.0	2.0	3.0
Hartford, Conn.	19.0	1/31 21.0	2/12 22.0	2/28 21.0	4/15 20.0	4/20 19.0	12/8 18.0	....	....	....	18.0	22.0	18.0	21.0	17.0	21.0	15.0	20.0	13.0	1.0	1.0	2.0	2.0	2.0
Dover, Del.	18.0	1/31 19.0	2/28 18.0	4/5 17.0	4/20 16.0	....	....	....	....	....	16.0	19.0	16.0	20.0	17.0	21.0	15.0	20.0	14.0	1.0	3.0	2.0	2.0	3.0
Jacksonville, Fla.‡	12.0	1/13 14.0	2/7 16.0	2/15 14.0	3/11 15.0	4/11 14.0	5/14 13.0	8/11 10.0	9/27 13.0	....	13.0	16.0	10.0	19.0	12.0	19.0	12.0	19.0	12.0	3.0	3.0	4.0	4.0	5.0
Atlanta, Ga.‡	14.0	1/13 16.0	2/7 18.0	2/15 16.0	3/11 17.0	4/11 16.0	5/3 14.0	8/27 12.5	11/10 10.0	12/2 13.0	13.0	18.0	10.0	21.0	14.0	21.0	14.0	19.0	11.0	3.0	3.0	3.5	3.5	4.0
Boise, Idaho	22.5	2/26 21.5	3/23 19.5	....	....	....	....	....	....	....	19.5	22.5	19.5	24.0	20.0	21.5	19.5	22.5	18.0	2.0	2.0	3.0	3.0	4.0
Peoria, Ill.	18.2	1/12 17.2	1/19 16.2	3/1 15.2	5/10 13.2	7/16 8.0	9/29 11.0	10/1 9.2	....	....	9.2	18.2	9.0	19.2	10.5	19.2	10.5	18.2	13.0	....	....	....	....	2.0
Chicago, Ill.§	17.0	1/12 16.0	3/1 15.0	5/10 14.0	....	....	....	....	....	....	14.0	17.0	14.0	18.0	15.0	18.0	13.0	18.0	13.0	....	....	....	....	2.0
Ind'anapolis, Ind.	18.2	1/12 17.2	1/19 16.2	3/1 15.3	5/10 13.2	9/15 11.2	10/12 10.2	....	....	....	10.2	18.2	10.2	19.2	16.2	19.2	13.2	18.2	13.2	2.0	2.0	3.0	3.0	3.0
Des Moines, Iowa	16.0	1/19 15.0	2/7 13.0	9/30 9.9	12/12 10.9	12/22 11.9	....	....	....	....	11.9	16.0	9.9	19.5	16.0	19.5	13.5	18.5	13.5	....	....	2.0	2.0	3.0
Wichita, Kans.§	15.8	1/12 14.8	3/1 13.8	5/10 11.8	12/13 10.8	....	....	....	....	....	10.8	15.8	10.8	16.8	14.8	18.8	8.8	17.8	12.8	....	....	2.0	2.0	2.0
Louisville, Ky.	17.0	3/14 15.0	4/15 14.0	11/19 13.0	....	....	....	....	....	....	12.0	17.0	13.0	20.0	17.0	19.0	12.0	19.0	12.0	1.0	3.0	3.0	5.0	5.0
New Orleans, La.	14.5	2/25 13.5	3/14 12.5	3/26 14.5	5/19 12.5	9/23 11.5	10/26 12.5	....	....	....	12.5	14.5	11.5	17.5	13.5	18.5	11.5	16.5	11.5	1.0	2.0	*3.0	*3.0	*3.0
Augusta, Me.	21.0	2/10 22.0	2/28 21.0	3/15 20.0	4/11 19.0	8/10 17.0	....	....	....	....	17.0	22.0	17.0	21.0	17.0	22.0	15.0	19.0	13.0	1.0	1.0	3.0	3.0	4.0
Baltimore, Md.	18.0	2/9 19.0	2/25 18.0	3/14 17.0	4/6 16.0	....	....	....	....	....	16.0	19.0	16.0	19.0	15.0	19.0	13.0	19.0	13.0	2.0	2.0	2.0	2.0	4.0
Springfield, Mass.	19.0	1/31 21.0	2/12 22.0	2/28 21.0	4/5 20.0	4/20 19.0	5/15 17.0	12/8 18.0	....	....	18.0	22.0	17.0	21.0	17.0	21.0	15.0	20.0	13.0	....	....	....	....	....
Detroit, Mich.	18.8	1/12 17.8	1/19 16.8	3/1 15.8	5/10 13.8	10/5 11.8	....	....	....	....	11.8	18.8	11.8	19.8	16.8	19.8	13.8	18.8	13.8	....	....	2.0	2.0	3.0
Duluth, Minn.	19.5	1/12 18.5	1/19 17.5	3/1 16.5	4/27 15.5	5/10 14.5	6/10 12.5	....	....	....	12.5	19.5	12.5	20.5	15.5	20.5	13.5	19.2	14.5	....	....	2.0	2.0	2.0
Natchez, Miss.	15.5	3/19 14.5	5/14 12.5	....	....	....	....	....	....	....	12.5	15.5	12.5	18.5	15.5	18.5	11.5	18.5	11.5	1.0	3.0	3.0	4.0	4.0
Kansas City, Mo.	17.9	1/12 16.9	1/19 15.9	1/30 14.0	5/10 12.9	6/10 10.9	....	....	....	....	10.9	17.9	10.9	18.9	15.9	18.9	12.9	17.9	11.9	1.0	*3.0	*3.0	*3.0	*3.0
Helena, Mont.	22.0	3/2 21.0	3/23 19.5	....	....	....	....	....	....	....	19.5	22.0	19.5	24.0	21.0	24.0	18.0	23.0	18.0	2.0	2.0	2.0	3.0	3.0
Omaha, Neb.	14.25	3/12 13.25	5/31 12.25	....	....	....	....	....	....	....	12.25	14.25	12.25	19.25	14.25	19.25	10.0	18.25	11.0	....	....	2.0	2.0	2.0
Reno, Nev.	18.0	3/19 15.0	5/4 17.0	7/1 18.0	....	....	....	....	....	....	18.0	18.0	15.0	19.5	16.5	18.5	16.5	18.5	14.5	2.0	2.0	4.0	4.0	4.0
Newark, N. J.	18.0	1/29 19.0	2/25 18.0	3/14 17.0	4/6 16.0	7/1 18.0	8/10 17.0	9/1 16.0	....	....	16.0	19.0	16.0	19.0	15.0	19.0	13.5	19.5	13.5	....	....	....	....	2.0
Albuquerque, N. Mex.	20.0	2/8 19.0	3/7 18.0	3/23 17.0	4/23 16.0	....	....	....	....	....	16.0	20.0	16.0	26.5	20.0	23.5	19.5	23.0	18.0	1.0	1.0	3.0	3.0	5.0
New York, N. Y.	21.0	2/10 22.0	2/28 21.0	3/15 20.0	4/11 19.0	8/9 17.0	....	....	....	....	17.0	22.0	17.0	21.0	17.0	22.0	15.0	20.0	14.0	....	....	....	....	....
Charlotte, N. C.	19.0	2/25 18.0	3/14 17.0	4/6 16.0	....	....	....	....	....	....	16.0	19.0	16.0	19.5	15.0	20.0	12.0	19.0	12.0	3.0	3.0	4.0	4.0	4.0
Fargo, N. D.	20.9	1/12 19.9	1/19 18.9	3/1 17.9	5/10 16.9	5/17 14.0	10/22 12.0	....	....	....	12.0	20.9	12.0	21.9	18.9	20.9	14.9	19.6	14.9	1.0	1.0	1.0	2.0	2.0
Cleveland, Ohio	19.0	3/21 18.0	4/20 16.0	10/1 14.0	....	....	....	....	....	....	14.0	19.0	14.0	20.0	16.0	18.5	15.0	20.0	15.0	....	....	2.0	2.0	3.0
Tulsa, Okla.	15.0	2/15 14.0	3/5 13.0	5/16 11.0	7/21 12.0	11/10 10.0	....	....	....	....	10.0	15.0	10.0	17.0	13.0	18.0	9.5	18.0	9.5	1.0	2.5	3.0	3.0	3.0
Portland, Ore.	14.0	3/19 11.0	5/4 13.5	7/1 14.5	....	....	....	....	....	....	14.5	14.5	11.0	16.0	13.0	15.0	13.0	16.0	12.0	3.0	3.0	3.0	3.0	3.0
Philadelphia, Pa.	18.0	1/31 19.0	2/28 18.0	3/13 17.0	4/5 16.0	4/20 15.0	5/15 14.0	6/15 12.0	7/14 14.0	12/8 15.0	15.0	19.0	12.0	20.0	17.0	21.0	15.0	20.0	14.0	†2.0	†2.0	†2.0	†2.0	†3.0
Providence, R. I.	19.0	1/31 21.0	2/12 22.0	2/29 21.0	4/5 20.0	4/20 19.0	5/15 17.0	....	....	....	17.0	22.0	17.0	21.0	17.0	22.0	15.0	20.0	15.0	....	....	1.0	1.0	2.0
Charleston, S. C.	19.0	2/25 18.0	3/14 17.0	4/6 15.0	....	....	....	....	....	....	15.0	19.0	15.0	19.5	15.0	20.5	12.5	19.0	12.5	3.0	3.0	5.0	5.0	5.0
Huron, S. D.	19.5	1/12 18.5	1/19 17.5	3/1 16.5	4/13 15.0	4/23 11.5	7/14 14.5	....	....	....	14.5	19.5	11.5	20.5	14.0	20.0	13.0	20.0	15.0	2.0	2.0	3.0	3.0	4.0
Memphis, Tenn.	15.0	2/25 14.0	5/19 10.0	6/27 12.0	10/11 13.5	11/23 12.0	....	....	....	....	12.0	15.0	10.0	18.5	13.5	18.0	10.5	18.0	12.0	2.0	2.0	3.0	3.0	3.0
Dallas, Tex.	13.0	3/3 12.0	4/5 11.0	4/15 10.0	6/9 12.0	8/22 11.0	....	....	....	....	11.0	13.0	10.0	17.0	13.0	18.0	10.0	17.0	9.0	1.0	1.0	1.0	1.0	3.0
Salt Lake City, Utah	20.5	2/26 19.5	3/23 17.5	12/3 16.5	....	....	....	....	....	....	16.5	20.5	16.5	22.5	18.5	21.5	17.5	21.5	16.5	2.5	2.5	3.5	3.5	3.5
Burlington, Vt.	20.0	2/10 22.0	2/28 21.0	3/15 20.0	4/11 19.0	8/9 17.0	....	....	....	....	17.0	22.0	17.0	21.0	18.0	22.0	15.0	19.0	13.0	1.0	1.0	2.0	2.0	3.0
Norfolk, Va.	18.0	3/14 17.0	4/6 16.0	....	....	....	....	....	....	....	16.0	18.0	16.0	19.0	15.0	20.0	14.5	19.0	14.5	3.0	3.0	3.0	4.5	4.5
Washington, D. C.	18.0	2/9 19.0	2/25 18.0	3/14 17.0	4/6 16.0	....	....	....	....	....	16.0	19.0	16.0	19.0	15.0	19.0	14.0	19.0	14.0	....	2.0	2.0	2.0	2.0
Charleston, W. Va.	18.0	3/14 17.0	4/6 16.0	....	....	....	....	....	....	....	16.0	18.0	16.0	19.0	15.0	19.0	14.0	19.0	14.0	2.0	2.0	2.5	3.5	4.0
Milwaukee, Wis.	18.1	1/12 17.1	1/19 16.1	3/1 15.1	5/10 13.1	....	....	....	....	....	13.1	18.1	13.1	19.1	16.1	19.1	13.1	18.1	13.1	....	....	2.0	3.0	3.0
Casper, Wyo.	18.0	2/2 17.0	3/23 15.0	9/28 14.0	....	....	....	....	....	....	14.0	18.0	14.0	20.0	17.0	20.0	14.0	19.0	14.0	1.0	1.0	2.5	2.5	3.0
Seattle, Wash.	14.0	3/19 11.0	5/4 13.5	7/1 14.5	....	....	....	....	....	....	14.5	14.5	11.0	16.0	13.0	15.0	13.0	16.0	12.0	2.0	2.0	2.0	2.0	2.0
Minneapolis, Minn.	15.2	1/19 14.2	5/27 12.0	6/5 11.0	....	....	....	....	....	....	11.0	15.2	11.0	20.2	15.2	20.2	13.2	18.9	12.0	....	....	2.0	2.0	2.0
Average price	17.57	....	....	....	....	....	....	....	....	....	14.29	18.15	13.55	19.717	15.713	19.667	13.638	18.99	13.27	1.32	1.76	2.34	2.47	3.08

Note—Changes given in the above table were made by the several Standard companies in the sections in which they operate. In addition to the posted price in the territory of the Standard Oil Co. of Indiana a quantity purchase rebate schedule was in effect until January 19. The schedule was: On purchases over 750 gallons a month, one-half cent; over 2,000 gallons, three-fourths cent; over 3,000 gallons, 1 cent; over 6,000 gallons, 1½ cents; over 10,000 gallons, 2 cents. If the quantity bought during the year was 12 times the monthly agreed purchases, the discount was paid or credited on the entire quantity for the year less any monthly purchases.

On January 19 the Standard Oil Co. of Indiana posted the following quantity discount schedule with the exception that the discount on dumps of 15,000 gallons was not included until February 28. Tank wagon prices of gasoline subject to discount of 1 cent a gallon on dumps of 50 gallons or more throughout territory except Chicago district, where discount applies only to dumps of 100 gallons. Outside the Chicago district the following quantity discount schedule is in effect on monthly tank wagon deliveries of gasoline: 6,000 gallons or more, 1½ cents; 10,000 gallons or more, 2 cents; 15,000 gallons or more, 3 cents. These discounts include the 1 cent allowed on dumps of 50 gallons or more at one delivery. Within the Chicago district the following quantity discount schedule is in effect on tank wagon deliveries of gasoline: 750 to 2,000 gallons, one-half cent; 2,000 to 3,000 gallons, three-fourths cent; 3,000 to 6,000 gallons, 1 cent; 6,000 to 10,000 gallons, 1½ cents; 10,000 to 15,000 gallons, 2 cents; 15,000 gallons or more, 3 cents. These discounts are in addition to the special discount of 1 cent on dumps of 100 gallons or more at one delivery. If the quantity bought during the year is equal to or exceeds 12 times the agreed monthly quantity, the discount is paid or credited on the entire quantity at the close of the term less the monthly payments made during the year.

The Magnolia Petroleum Co. also had a similar schedule in Oklahoma, as follows: On purchases over 750 gallons a month, one-half cent; over 2,000 gallons, three-fourths cent; over 2,000 gallons, 1 cent; over 4,500 gallons, 1¼ cents; over 6,000 gallons, 1½ cents; over 8,000 gallons, 1¾ cents; over 10,000 gallons, 2 cents. The same rule applied for annual discounts as with the Standard Oil Co. of Indiana.

‡Jacksonville prices include one-eighth cent inspection fee, but at Atlanta one-half cent fee is not included.

§Chicago prices based on dumps of 100 gallons, and Wichita prices on dumps of 50 gallons to January 19; after January 19 price at all Standard of Indiana points based on dumps of 50 gallons, except Chicago. Regular tank wagon posting 1 cent higher.

*Includes 1 cent city tax, as state tax is only 2 cents.

†Pennsylvania tax paid by dealers and is not to be added to tank wagon postings.

West Texas Big Development in 1927

A Potential Production of Nearly 500,000 Bbls. a Day Was Held Down Because of Overproduction Elsewhere

The greatest era of production and pipe line building that West Texas has ever known occurred in 1927. In spite of the general depression throughout the industry which caused West Texas crude to be reduced to 60 cents a barrel in August, and in spite of restrictive influences which retarded drilling and development, the daily average production of that great region rose from 65,000 bbls. at the first of the year to more than 280,000 bbls. in January of 1928.

Right now, the Permian Basin of West Texas is capable of producing approximately 450,000 to 500,000 bbls. daily if the present producing wells could be opened up. That is distributing about 200,000 bbls. of shut in and potential production among the fields of Yates, Hendricks and Church-Fields-McElroy.

The story of 1927 is largely the story of two of the greatest pools which have been discovered in the Mid-Continent for years. Because Seminole's glare cast nearly all other oil producing areas into the shadows, Yates Pool of Pecos County and the Hendricks Pool of Winkler County have not become known to the general public in their true proportions. True, the Yates Pool has received national publicity through its most spectacular gusher, the Mid-Kansas Oil & Gas Co. and Transcontinental Oil Co.'s No. 2 Yates-C, but the shallow depth at which production is found leads many to underrate its ultimate importance. And, just as the Yates Pool lay in Seminole's shadow, so the Hendricks Pool has lain in Yates' shadow. From present indications, the latter field will probably be surpassed by the Hendricks Pool both in extent of producing area and in ultimate production.

Four trunk pipe lines, connecting West Texas fields with Gulf Coast ports were constructed in 1927 and another trunk line was started from Upton County to

(Continued on Page 191)

West Texas

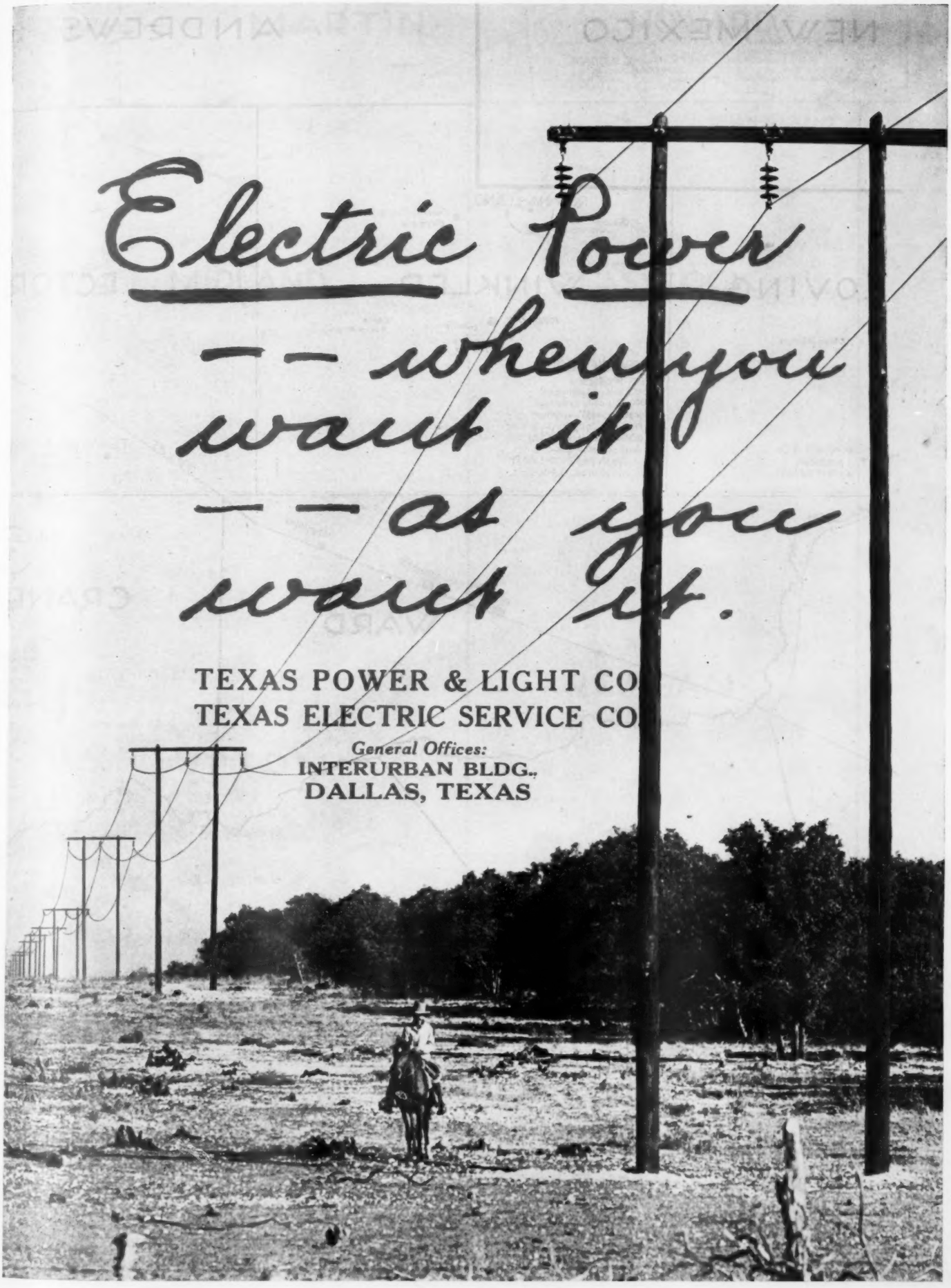
Daily Average and Monthly Production in 1927

	January	February	March	April	May	June	July	August	September	October	November	December	Total
REAGAN COUNTY—													
Daily average	29,717	26,690	25,470	27,278	25,174	24,814	20,421	20,681	20,315	25,385	19,275	19,946	
Month	921,227	747,320	789,570	818,340	780,394	744,420	633,051	641,111	609,450	786,935	578,250	618,313	8,668,381
MITCHELL COUNTY—													
Daily average	3,480	3,687	3,745	3,801	3,825	3,766	4,006	3,969	3,682	3,913	3,338	3,431	
Month	107,880	103,236	116,095	114,030	118,575	112,980	124,186	123,039	110,460	121,303	100,140	106,356	1,358,280
GLASSCOCK COUNTY—													
Daily average	.....	.....	.....	32	34	36	34	34	58	88	28	.....	
Month	.....	.....	.....	960	1,054	1,080	1,054	1,054	1,740	2,728	840	.....	10,510
WINKLER COUNTY—													
Daily average	122	175	335	1,201	905	1,231	1,203	3,149	8,523	12,761	26,961	44,981	
Month	3,782	4,900	10,385	36,030	28,055	36,930	37,293	97,619	255,690	395,591	808,830	1,394,418	3,109,523
HOWARD COUNTY—													
Daily average	1,396	1,689	2,577	2,157	2,734	3,291	3,513	3,489	3,031	3,533	4,215	5,211	
Month	43,276	47,292	82,987	64,710	84,754	98,730	108,903	108,159	90,930	109,523	126,450	161,555	1,127,580
SCURRY COUNTY—													
Daily average	35	34	26	54	54	20	52	52	41	40	40	55	
Month	1,085	952	806	1,620	1,674	600	1,612	1,612	1,230	1,240	1,200	1,705	15,336
UPTON-CRANE COUNTIES—													
Daily average	32,837	29,706	40,778	55,342	67,092	69,147	76,853	98,636	127,338	129,312	122,916	119,306	
Month	1,017,947	831,768	1,264,118	1,660,260	2,079,852	2,074,410	2,382,443	3,057,716	3,819,990	4,008,672	3,687,480	3,698,475	29,583,131
CROCKETT COUNTY—													
Daily average	990	1,100	1,067	1,037	844	1,304	1,434	1,448	2,014	2,948	2,113	1,732	
Month	30,690	31,080	33,077	31,110	26,164	39,120	44,454	44,888	60,420	91,388	63,390	53,702	549,484
LOVING COUNTY—													
Daily average	15	15	17	24	18	24	17	44	34	44	66	75	
Month	465	420	527	720	558	720	527	1,364	1,020	1,364	1,980	1,623	11,284
PECOS COUNTY—													
Daily average	.....	3,244	1,074	792	12,661	7,451	5,056	5,768	15,133	29,759	40,476	50,326	
Month	.....	90,832	33,294	23,760	392,491	223,530	156,736	178,808	453,990	922,529	1,214,280	1,559,923	5,256,173
ECTOR COUNTY—													
Daily average	.....	.....	21	18	14	16	14	14	17	21	19	16	
Month	.....	.....	651	540	434	480	434	434	510	651	570	496	5,200
GARZA COUNTY—													
Daily average	.....	.....	.....	.....	 30	5	.....	.....	.....	.....	.....	.....	
Month	.....	.....	.....	.....	 930	150	.....	.....	.....	.....	.....	.....	1,080
Daily average	68,592	66,350	75,210	91,736	113,385	111,105	112,603	137,284	180,181	207,804	219,447	245,073	136,136
Month	2,126,352	1,857,800	2,331,510	2,752,080	3,514,935	3,333,150	3,490,693	4,255,804	5,405,430	6,441,924	6,583,410	7,596,569	49,689,657

Central Texas

Daily Average and Monthly Production in 1927

	January	February	March	April	May	June	July	August	September	October	November	December	Total
CLEAR FORK—													
Daily average	5,467	5,055	4,776	7,329	7,753	7,065	.....	.....	.....	.....	.....	.....	
Month	169,477	141,540	148,056	219,870	240,343	211,950	.....	.....	.....	.....	.....	.....	1,131,236
BRECKENRIDGE—													
Daily average	4,837	4,850	6,147	4,833	4,524	4,286	.....	.....	.....	.....	.....	.....	
Month	149,947	135,800	190,557	144,990	140,244	128,580	.....	.....	.....	.....	.....	.....	890,118
CADDO—													
Daily average	2,967	2,982	2,861	2,706	3,136	3,080	.....	.....	.....	.....	.....	.....	
Month	91,977	83,496	88,691	81,180	97,216	92,400	.....	.....	.....	.....	.....	.....	534,960
RANGER-EASTLAND—													
Daily average	5,295	5,990	6,879	7,248	7,367	7,284	9,605	9,000	7,837	7,829	8,716	7,905	
Month	164,145	167,720	213,249	217,440	228,377	218,520	297,755	279,000	235,110	242,699	261,480	245,055	2,770,550
RISING STAR—													
Daily average	42	39	46	37	50	44	.....	.....	.....	.....	.....	.....	
Month	1,302	1,092	1,426	1,110	1,550	1,320	.....	.....	.....	.....	.....	.....	7,800
SIPE SPRINGS—													
Daily average	140	162	148	158	129	126	.....	.....	.....	.....	.....	.....	
Month	4,340	4,536	4,526	4,740	3,999	3,780	.....	.....	.....	.....	.....	.....	25,921
DESDEMONA—													
Daily average	1,561	1,486	1,491	1,497	1,450	1,471	.....	.....	.....	.....	.....	.....	
Month	48,391	41,608	46,221	44,910	44,950	44,130	.....	.....	.....	.....	.....	.....	270,210
PIONEER—													
Daily average	440	467	425	445	423	419	.....	.....	.....	.....	.....	.....	
Month	13,640	13,076	13,175	13,350	13,113	12,570	.....	.....	.....	.....	.....	.....	78,924
BROWN COUNTY—													
Daily average	19,009	22,394	24,891	23,669	26,892	23,544	18,368	18,135	19,638	19,538	16,960	14,402	
Month	589,279	627,032	771,621	710,070	833,652	706,320	569,408	562,185	589,140	605,678	508,800	446,462	7,519,847
CALLAHAN COUNTY—													
Daily average	5,478	5,320	4,767	4,362	3,945	4,314	3,738	4,195	4,305	3,841	4,120	4,152	
Month	169,818	148,960	147,777	130,860	122,295	129,420	115,878	127,255	129,150	119,071	123,600	128,712	1,592,796
STEPHENS COUNTY—													
Daily average	.....	.....	.....	.....	.....	.....	9,796	8,284	8,150	8,051	7,956	7,535	
Month	.....	.....	.....	.....	.....	.....	303,676	256,804	244,500	249,581	238,680	233,585	1,526,826
COMANCHE COUNTY—													
Daily average	.....	.....	.....	.....	.....	.....	1,202	171	168	169	154	117	
Month	.....	.....	.....	.....	.....	.....	37,262	5,301	5,040	5,239	4,620	3,627	61,089
ERATH COUNTY—													
Daily average	.....	.....	.....	.....	.....	.....	348	311	271	256	306	398	
Month	.....	.....	.....	.....	.....	.....	10,788	9,641	8,130	7,936	9,180	12,338	58,013
COLEMAN COUNTY—													
Daily average	1,164	1,649	1,354	1,234	1,214	1,160	1,229	1,204	1,980	1,208	1,045	1,046	
Month	36,084	46,172	41,974	37,020	37,634	34,800	38,099	37,324	32,400	37,448	31,350	32,426	442,731
JONES COUNTY—													
Daily average	1,284	1,680	2,598	2,176	1,813	1,862	1,855	1,946	1,397	1,328	1,332	1,320	
Month	39,804	47,040	80,538	65,280	56,203	55,860	57,505	60,326	41,910	41,168	39,960	40,920	626,514
JACK COUNTY—													
Daily average	602	527	477	543	450	636	692	790	842	856	1,552	1,597	
Month	18,662	14,756	14,787	16,290	13,950	19,080	21,452	24,490	25,260	26,536	46,560	49,507	290,330
PALO PINTO COUNTY—													
Daily average	398	473	521	468	507	449	512	484	456	471	459	460	
Month	12,338	13,244	16,151	14,040	15,717	13,470	15,872	15,004	13,680	14,601	13,770	14,260	172,147
SHACKELFORD COUNTY—													
Daily average	12,312	13,240	13,517	11,770	9,269	7,757	6,040	5,742	5,169	5,166	5,095	5,188	
Month	381,672	370,720	419,027	353,100	287,339	232,710	187,240	178,002	155,070	160,146	152,850	160,828	3,038,704
THROCKMORTON COUNTY—													
Daily average	1,877	1,665	1,546	1,835	1,790	2,091	1,633	1,361	1,328	1,245	1,130	1,139	
Month	58,187	46,620	47,926	55,050	55,769	62,730	50,623	42,191	39,840	38,595	33,900	35,309	566,740
Daily average	62,873	67,979	72,442	70,310	70,721	65,588	55,018	51,533	50,641	49,958	48,825	45,259	59,195
Total 1927	1,949,063	1,903,412	2,245,702	2,109,300	2,192,351	1,967,640	1,705,558	1,597,523	1,519,230	1,548,698	1,464,750	1,403,029	21,606,256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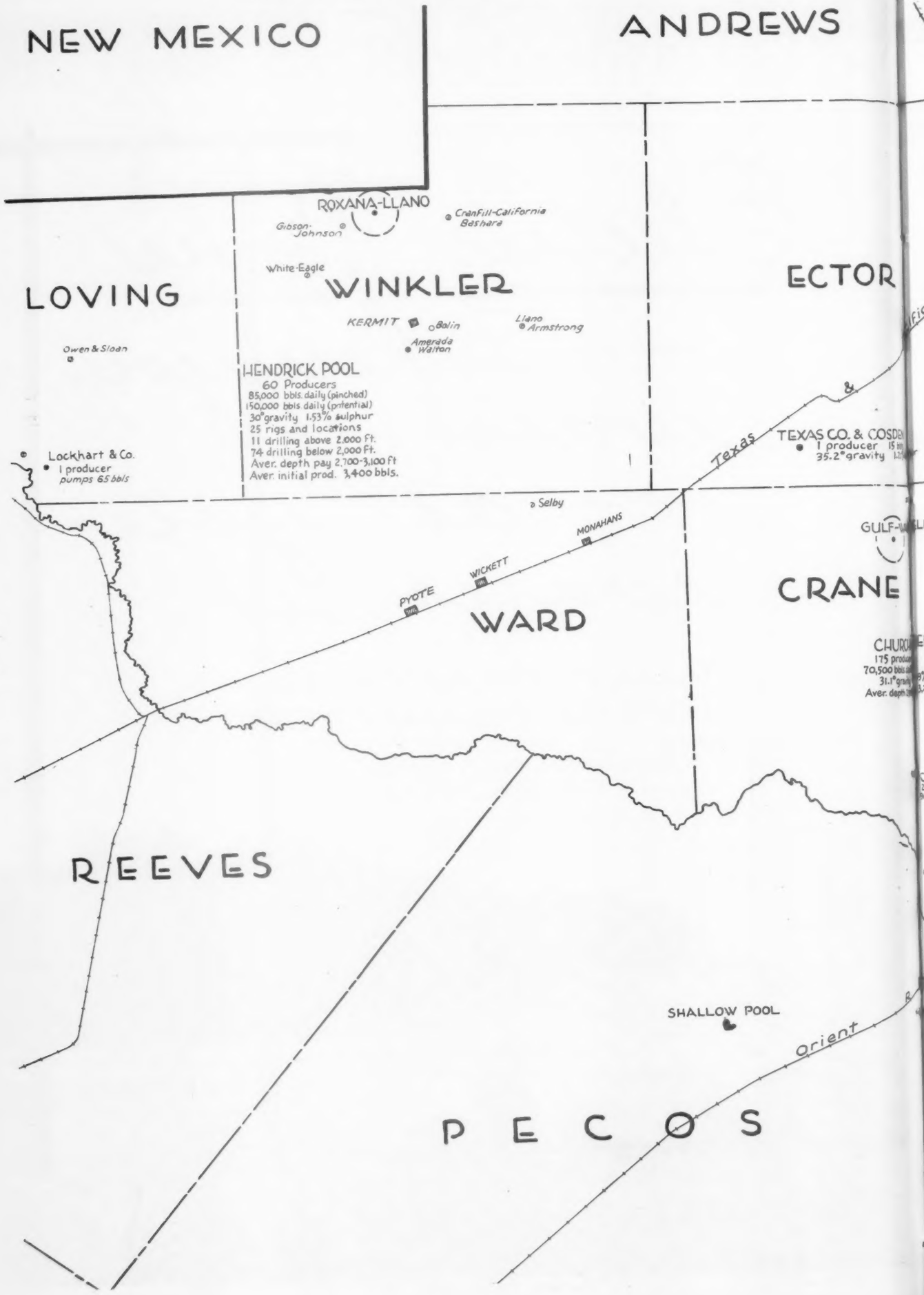
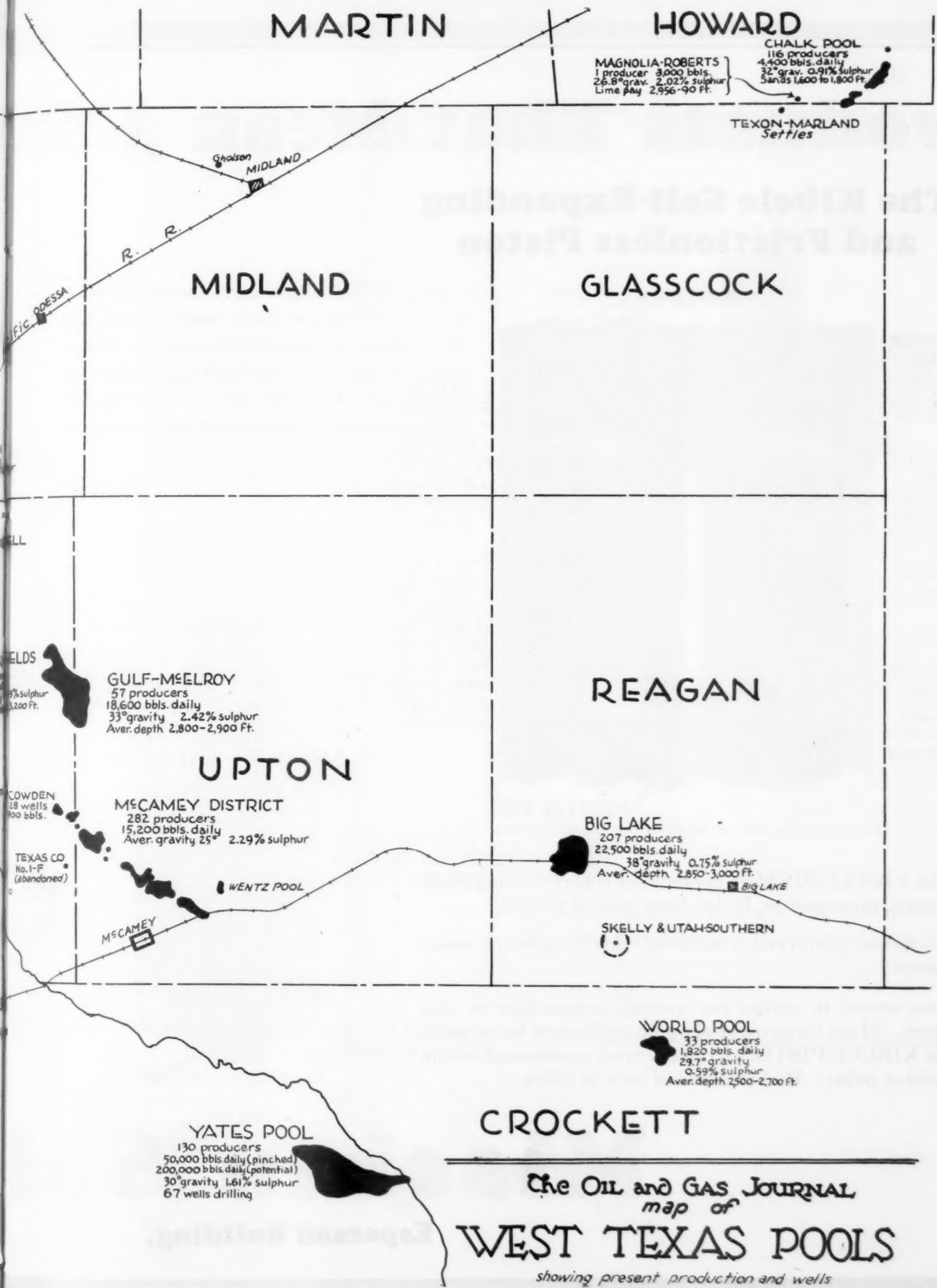

NEW MEXICO
ANDREWS
ROXANA-LLANO
Gibson-Johnson
Cranfill-California Bashara
White-Eagle
LOVING
WINKLER
ECTOR
KERMIT
Balin
Llano
Armstrong
Amerada Walton
Owen & Sloan
HENDRICK POOL
60 Producers
85,000 bbls. daily (pinched)
150,000 bbls daily (potential)
30° gravity 1.53% sulphur
25 rigs and locations
11 drilling above 2,000 Ft.
74 drilling below 2,000 Ft.
Aver. depth pay 2,700-3,100 ft
Aver. initial prod. 3,400 bbls.
Lockhart & Co.
1 producer
pumps 65 bbls
Texas
TEXAS CO. & COSDEN
1 producer 15
35.2° gravity
Selby
MONAHANS
WICKETT
PYOTE
WARD
GULF-
CRANE
CHURCHFIELDS
175 produc
70,500 bbls
31.1° gravity
Aver. depth
3,200 Ft.
COWDEN
28 well
300 bbls
TEXA
No. 1-F
(aband
REEVES
SHALLOW POOL
Orient
PECOS



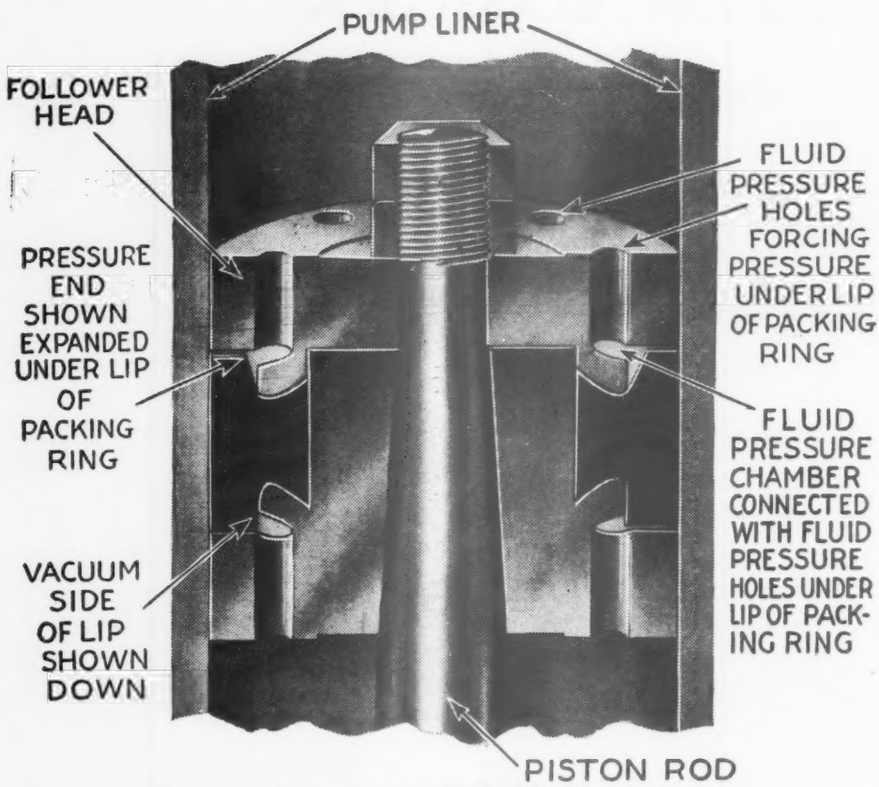
The Oil and Gas Journal
map of

WEST TEXAS POOLS

showing present production and wells

Products That Mean a Sav

The Kibele Self-Expanding and Frictionless Piston


PUMP LINER
FOLLOWER HEAD
FLUID PRESSURE HOLES FORCING PRESSURE UNDER LIP OF PACKING RING
PRESSURE END SHOWN EXPANDED UNDER LIP OF PACKING RING
FLUID PRESSURE CHAMBER CONNECTED WITH FLUID PRESSURE HOLES UNDER LIP OF PACKING RING
VACUUM SIDE OF LIP SHOWN DOWN
PISTON ROD

Showing working parts of the Kibele Self Expanding Piston

The KIBELE PISTON is made for rotary drilling slush pumps, mine pumps, boiler feed, and oil pumps.

No special piston rod is required. Made to fit any make pump.

Guaranteed to outlast the average piston four or five times. Many large users of pump equipment have found the KIBELE PISTON to be the most economical on the market today. Reduced prices now in effect.

The products shown on these pages have been tested and proven, by some of the largest users of oil field equipment, to be superior to any similar products on the market today.

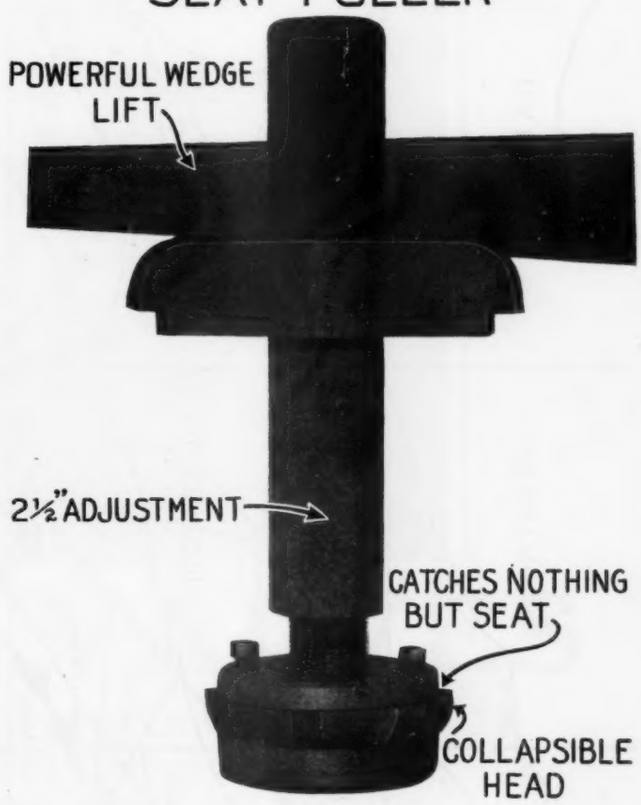
Complete information on these products, including price lists, will be gladly furnished by your supply store or by writing direct to MISSION SALES COMPANY.

Mission Sale

Esperson Building,

Saving to the Oil Industry

SECO VALVE SEAT PULLER



THE SECO VALVE SEAT PULLER is a positive seat puller that will not break while pulling valve seats no matter how tight they are stuck. This puller has been approved by many of the best engineers in the pump manufacturing business. THE SECO LINER PULLER works on the same principle as the valve seat puller.

SECO HOSE CLAMP AND NOZZLE (ALL STEEL)

THE SECO HOSE CLAMP AND NOZZLE is all steel, and much longer than the average. It prevents hose from short kinks and will add 50% to the life of the hose.

Guaranteed to give complete satisfaction at all times.

Company

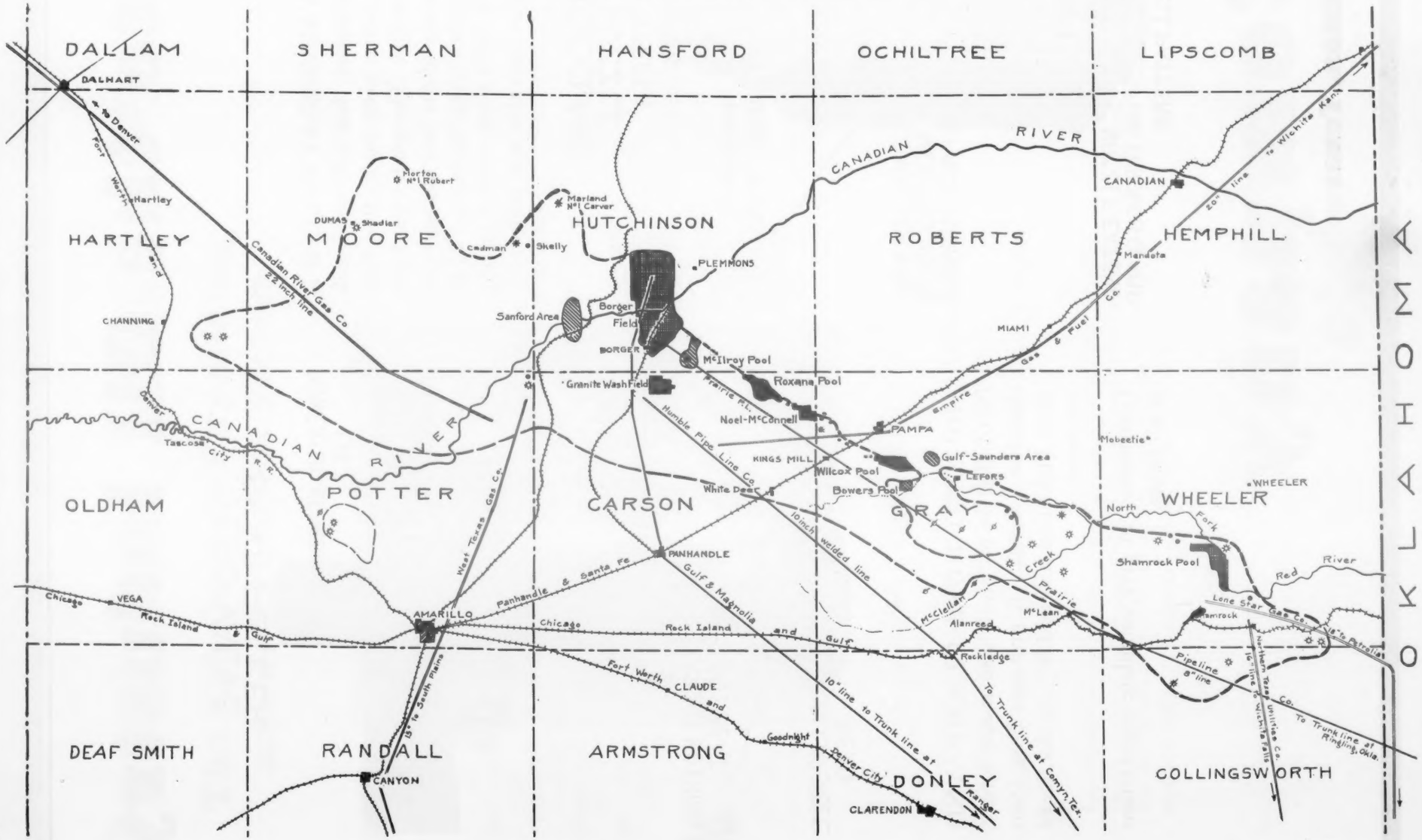
Houston, Texas

MAP OF PANHANDLE DISTRICT
SHOWING DEVELOPMENT IN 1927.

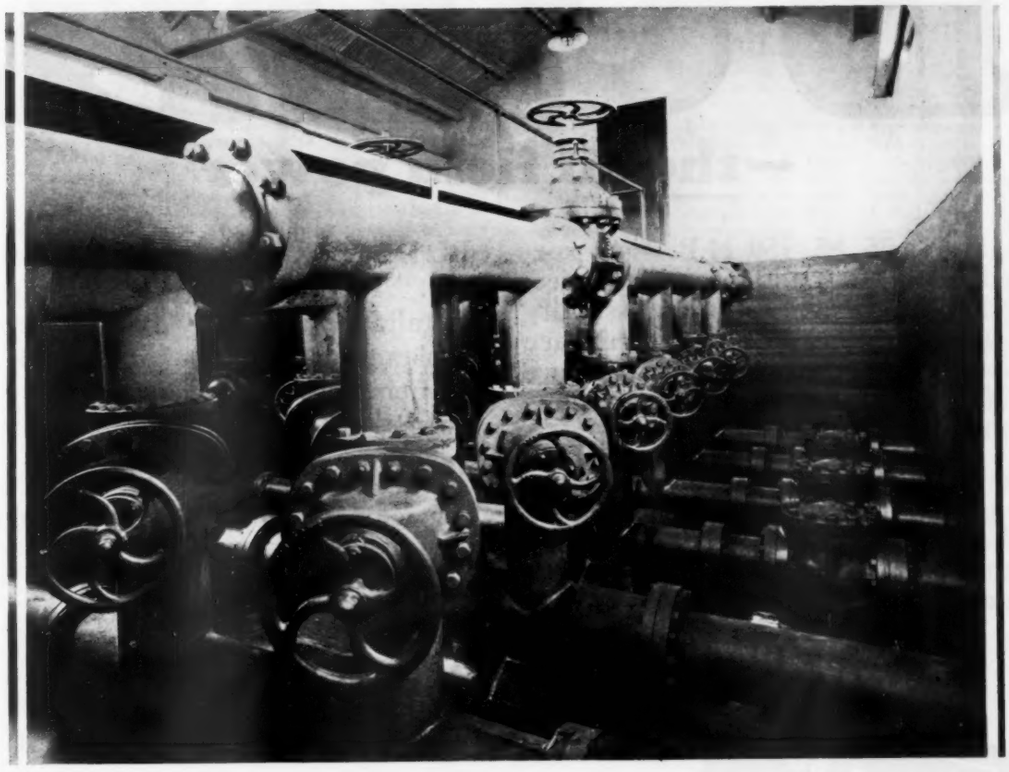
LEGND
- Oil fields developed prior to 1927.
- Oil fields developed during 1927.
- Probable limits of gas producing area.
- Oil Pipe lines constructed in 1927.
- Gas pipe lines constructed in 1927.

Branch Railroads running north from Amarillo and from Panhandle were completed in 1927.

Compiled and drawn by
Carl C. Adams, Consulting Geologist
Fort Worth, Texas.



IT PAYS TO SPECIFY



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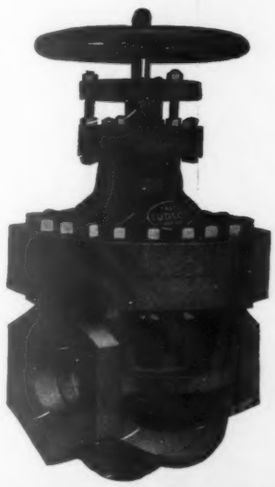
THE best reason for specifying Ludlow valves on your requirements is that—*many thousands are now and have been in use for years.* As each year passes a greatly increasing number is furnished—all of which render the dependable service for which Ludlow is internationally known.



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BUDA Power Units burn gasoline or natural gas. Adaptable to either stationary or portable installations, for any type of drive and either constant or standby service. BUDA is more economical and efficient than any other type of power.

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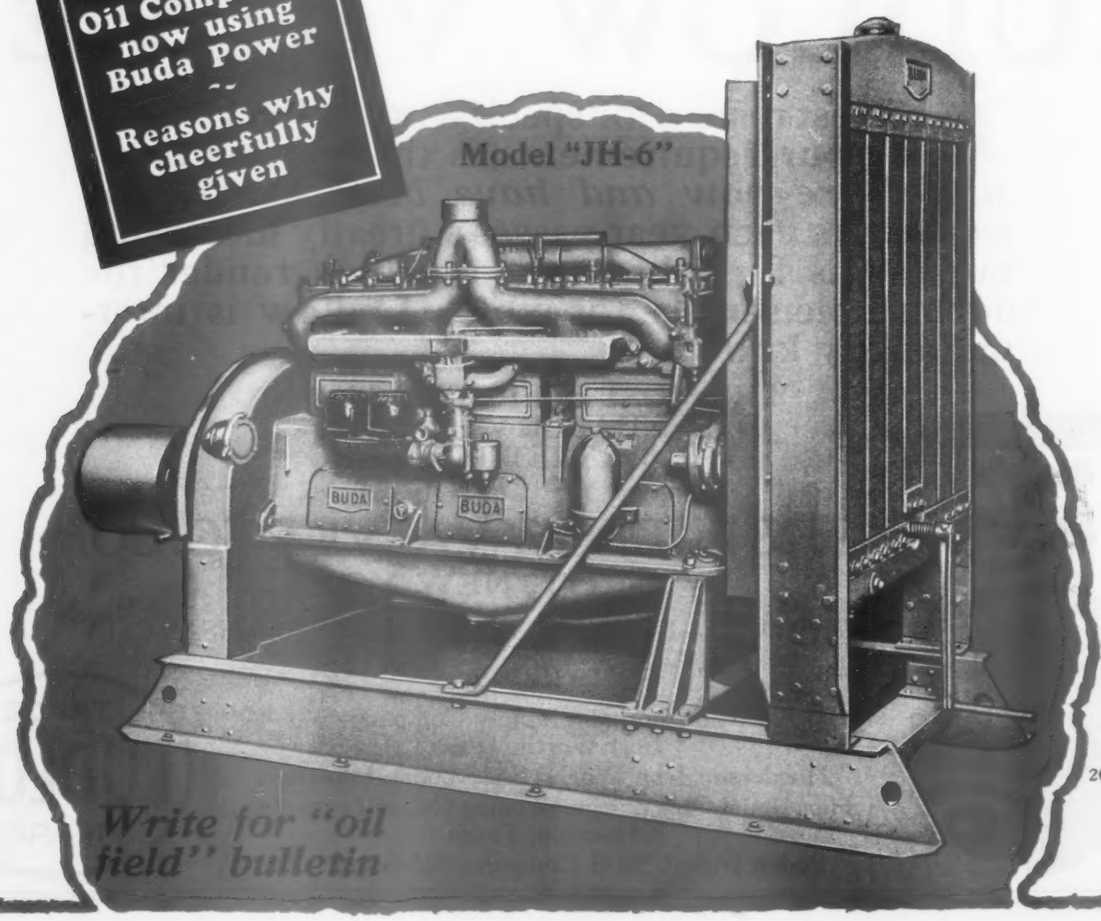

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Record Breaking Year for Oklahoma

State Reached Its Highest Mark in Oil Production and Developed World's Biggest Pool, With Little Profit

By J. L. Dwyer
Staff Correspondent, Oklahoma Fields

In one of the most interesting, most active and most disastrous years of its oil history, there was one outstanding region in Oklahoma, and that was Seminole. When the tribe of Indians from which the pool derived its name were moved out from Florida by the Federal Government 60 years ago, they little dreamed of the mineral wealth with which their lands were underlain, nor of the turmoil which its extraction would cause to oildom and the financial resources which are invested in it. While there are cases of excellent profits realized from the production of the Greater Seminole Field, broadly considered it was one of the principal factors in the utter demoralization which the industry experienced last year, and from which it is now slowly convalescing.

The star of Greater Seminole easily outshone not only every other planet in the oil firmanent of Oklahoma, but outshone the combined brilliance of them all. It was the center of attraction all through the year, and by its marvelous performance continuously upset the most carefully established calculations made by those who had spent years in studying oil production in this State. When its record remained steadily above the 300,000-bbl. mark for months, there were innumerable recruits to the Alibi Club.

Seminole Broke a Record

Greater Seminole started the year with 166,000 bbls., and finished with 316,000 bbls. Due to its output, the State of Oklahoma witnessed its production surpass all other states, and during the last week of July maintain a daily average of 885,570 bbls., out of which Seminole accounted for 514,085 bbls. The highest daily figure was recorded on July 30 when 527,400 bbls. were placed in the tanks at Seminole. On that day Oklahoma produced very nearly 900,000 bbls. of oil.

In addition to its stellar record, Greater Seminole was one of the first fields to experience a unity of thought regarding operations, and the famous series of conferences led to a working arrangement which had a wide influence upon not only the field itself, but also on the general plan of field operations, an agreement which seems destined to exert an influence upon future problems of overproduction, for Seminole has conclusively demonstrated that the oil men are able to agree upon any constructive plan and that they are willing to subvert the interests of one for the interests of all. It has left its mark upon the sands of time, and developed in the operators of the region, the best evidence of co-ordination and co-operation which has marked the progress of the drill in this State.

Umpire System a Success

The third field of Oklahoma to have its oil run under the supervision of an umpire appointed by the producers themselves (Cushing and Healdton having been the other two), Seminole was governed by a group of men comprising a committee, which worked with the umpire. The committee consisted of Howard N. Cole, vice president of the Pure Oil Co., chairman; R. B. Pringle, vice president of the Independent Oil & Gas Co.; J. J. Conry, general superintendent of the Carter Oil Co.; R. F. MacArthur, vice president of the Barnsdall Oil Co., and J. S. Sidwell, of the Prairie Oil & Gas Co. This committee, with the umpire, Ray M. Collins, president of the Echo Oil Co., handled the vexatious problems of the Seminole squabble, and probably spent many sleepless nights in formulating the rules under which the output of the field was effectively curbed. It is problematical what the peak of Seminole would have been, had drilling proceeded unhampered; and it is reasonable to expect that a daily output of 600,000 bbls. might have been witnessed if the rulings of the committee had not been in effect.

There never was an oil field like Seminole. The other major pools of Oklahoma were marked by drilling activity which spread as new finds warranted. When a new well having a good production was completed, the offset rigs were erected, and possibly spread to two locations from the well. It was different in Seminole. When a single well in the Little River Pool was drilled in and had a daily production of 9,000 bbls., there were 102 active operations started, testing 1,020 acres. They ranged in every direction from the discovery well.

There were several contributing conditions to this system of drilling. The Wilcox sand of Seminole was of an extraordinary soft, friable, nature, and this has naturally resulted in the belief that drainage effects would be unusually severe. With chances that delayed drilling would cause a loss in production, there was every haste to drill the wells in this field, and had not the committee and the umpire intervened, it is likely that there would have been 1,500 wells completed in the field as the year 1927 passed out.

The peaks of production of the various pools of Greater Seminole and their dates are:

Pool—	Peak	Date made
Seminole Pool	264,500	February 22
Searight	40,621	June 15
Bowlegs	194,773	July 14
Earlsboro	209,874	August 10
Little River	47,152	October 20

Air-Gas Lift

The Seminole Pool was the first major oil field to be developed under the air-gas method of lifting oil from the sands. It has taught many lessons (some extremely expensive) and afforded an unlimited opportunity for study by the technicians. Were it not for the progress made by the air-gas lift method of producing oil, the Bowlegs Field would probably have been limited to a peak of 75,000 bbls., for the wells in that area had a very limited natural flow, and Bowlegs was the pool of Seminole which produced the most fertile results from the air lift. There was an excellent amount of saturation in the sand at Bowlegs, but practically no gas pressure. When the drill penetrated the sand, a column of oil would rise 2,000 and 3,500 feet up the hole. The wells made few flows, but when subjected to the air lift, they have produced as high as 4,000 bbls. Years ago, a well which merely had a column of oil would have immediately been placed on the pump, and while it would ultimately show a substantial profit, the thought that a column of oil could be transformed into a well having a daily output of 4,000 bbls. would have seemed incredible. Such is the path of science, and the Bowlegs Pool is one of the most substantial monuments ever erected to modern engineering skill.

History of Seminole

While the Little River Pool was the only one of the five pools to be discovered last year, a brief chronology of all the pools might not be amiss. The first strike at Seminole was made in February, 1926, by the Indian Territory Illuminating Oil Co. in its No. 1 Dyer, in Section 24-9-6. This was a Hunton lime well which had an initial output of 1,100 bbls. daily. The Searight Pool was opened by F. J. Searight and others in No. 1 Youngblood, Section 33-10-6, during April, 1926. The first well was also a Hunton lime well making 300 bbls. daily. During August, the second well on this farm found the Wilcox sand with an initial production of 4,000 bbls.

The Seminole Pool had its first Wilcox sand oil in the Independent Oil & Gas Co. and R. F. Garland's No. 1 Tolof Fixico, Section 26-9-6. This well found the Wilcox sand July 16 and made 1,100 bbls. originally. It was gradually deepened, and its best production was 7,600 bbls., made during September, 1926.

Earlsboro, after several years of shallow production found at 3,400 feet experienced its first Wilcox sand oil when the Gypsy Oil Co., the Amerada Petroleum Corp. and the Westland Oil Co.'s No. 1 State Land, NE cor. NE, Section 16-9-5, tapped sand at 4,300 feet and the well made 8,000 bbls. originally, although deeper penetration increased this amount to 12,000 bbls. One of the interesting side notes of this pool was that two of the offsets were dry holes.

Development of Bowlegs

Two wells at Bowlegs were completed very near the same time, and both were owned by the Indian Territory Illuminating Oil Co.'s No. 1 Livingston in Section 15-8-6, and No. 1 Davis in Section 13-8-6, were brought into the Wilcox sand during Christmas week in 1926. The Wilcox sand in these wells was found 4,200 feet deep, and more recent explorations discovered a second Wilcox sand in this pool at a depth of from 75 to 100 feet below the first Wilcox. The Livingston well had an initial output of 4,000 bbls., and the Davis well 5,500 bbls.

Little River was opened by the Indian Territory Illuminating Oil Co.'s No. 1 House, located in the NW cor., Section 1-7-6, and at the time of discovery, 3 miles south of the limits of Bowlegs. The House well had Wilcox sand 4,125 feet, and an initial output of 9,300 bbls. daily. It was discovered June 19.

There are several outside wells in the Greater Seminole belt which have a potential production, and under the plans of the Seminole committee and umpire, they have been reduced to a daily production of 100 bbls. per well; and no drilling is permitted close to them. A list of these potential producers is given below.

Important Outside Wells

Prairie Oil & Gas Co.'s No. 1 Baker, Section 24-9-5, which had Wilcox sand 4,315 feet and made 1,100 bbls. originally. This well tapped the sand May 23.

Gypsy Oil Co.'s No. 1 Dosar, Section 7-8-6, which had Wilcox sand 4,235 feet, and made 900 bbls. originally. This well was drilled in October 14.

Barnsdall Oil Co. and Wolfe Oil Corp.'s No. 1 Fife, in Section 14-8-5, which made 1,396 bbls. from the Wilcox sand 4,292-4,296 feet. This well struck the sand December 11.

Gypsy Oil Co.'s No. 1 Cindy Brown, Section 33-8-6, which had Wilcox 4,539 feet and made 589 bbls. originally. This well was discovered March 29.

Mid-Continent Petroleum Corp's No. 1 Smith, Section 5-7-7, which was estimated at 1,250 bbls. per day from Wilcox sand 4,443-4,444 feet. This well was discovered December 9 and has been pinched in to 50 bbls. daily.

Snowden & McSweeney's No. 1 Tiger, Section 13-7-6, flowed 744 bbls. the first 24 hours from the Wilcox, 4,315-4,316 feet. This well was in the Wilcox sand November 24.

Independent Oil & Gas Co. and Highway Oil & Refining Co.'s No. 1 Hotulke, Section 23-7-6, was estimated at 2,350 bbls. from sand 4,323-4,324 feet, and has been shut in completely. It found the sand November 6.

These seven wells have been considered a distinct menace to the future stability of the crude market, and numerous reports regarding their possibilities have been broadcast. Potential production has seemed to have a more injurious effect upon the market than actual production, and the complete failure of some of the wells in the Seminole (most notably the Indian Territory Illuminating Oil Co.'s No. 1 State Land, Section 16-8-5) has removed from the possibilities many thousands of barrels of which were regarded as certain for 1928 production. It is plausible to believe that speculation regarding futures in this area are a trifle "hot" to say the least, and when the drill is finally put to work many of the regions around the seven wells will be found distinctly disappointing. Of all seven potentialities, the Independent's Holutke and the Barnsdall's Fife seem to have the best prospects. They have been established as having a high structural position, and most important, they have actually produced a good amount of oil per day, a feat which some of the others have not done.

Reviewing the experiences of other major pools, it is noticeable that while there has been good production found close to the larger units, the farther from the major pool the oil is found, the smaller the area it covers. It is probable that this will be true of the Seminole Field, and that the seven wells comprising the potential output will bear a resemblance more like that of Little River, than like Seminole. The discovery well in each of these potential regions will very likely have a long pull upon the sands before the offsets can be completed, but it seems reasonable to believe that a peak output of 50,000 barrels each for three of them, and 25,000 bbls. for the remainder will probably be their high points.

The Allen Deep Sand Pool

The Allen Field in Pontotoc County is a quiet little spot which was overshadowed by the Seminole development, but this pool closed the year with an output of 6,000 bbls. coming from 30 wells. The discovery well in this pool was the Homaokla Oil Co.'s No. 1 Wheeler, NW cor. SW SW, Section 16-5-8, which made 300 bbls. originally from a sand thought to be a member of the Dutcher family found at 2,200 feet. This well was discovered February 25, 1927. The seccond well to be completed in this sand at Allen was the Louisiana Oil & Refining Co.'s No. 6 McCall, NE cor. SW SW, Section 17-5-8, which made 500 bbls. initially. These two wells gave the deeper sand at Allen its drilling activity. There has been shallow production (500 feet) at Allen for many years.

East Extension of Burbank

The east trends of the Burbank Field attracted some interest during the year. The trends formed a narrow strip some three or four locations wide which followed the outline of the main pool although removed from it by a distance varying from a quarter to a half mile. The Kewanee Oil & Gas Co., Lewis Gas Products Co. and A. G. Olpihant and others (who later sold out to the Prairie Oil & Gas Co.) were among those who participated in this operation.

Deepest Producer in State

In Logan County, the Roxana Petroleum Corp. opened the first Wilcox sand production by the completion of its No. 1 McCulley, SW cor. NE SE, Section 30-19-4w, which had sand 5,985 feet, and which had an initial output of 2,300 bbls. This well was drilled in May 17, 1927, and has produced over 300,000 bbls. of oil to date. The current output of the well is 2,090 bbls., and it is the only producing well which has been completed in the field and the deepest producer in the State. The Wentz Oil Corp.'s No. 1 Williams, NE cor. NE, Section 31-19-4w,

seems to be a failure in the Wilcox as this is written and has found a hole full of salt water at 6,279 feet. Insufficient data regarding this operation limits any future speculation about its possibilities, although the fact that a good body of sand was found in the discovery well, and the steady performance of its production might influence the thought that some good results may be anticipated in this territory.

An interesting side light about this pool is the unusual temperature of the oil. The temperature runs from 52 to 60 degrees Fahrenheit, a figure which is at least 20 degrees below the average Wilcox sand oil.

Immense Gain in Production

Oklahoma broke all its production records last year. A total of 276,022,024 bbls. of crude oil was brought to the surface a gain over the year before of 98,371,826 bbls. To show at a glance the immensity of Oklahoma's 1927 crop of oil the figures for previous years will be given.

Of the total in 1927 the Greater Seminole area produced 135,951,098 bbls. In other words had it not been for Seminole, Oklahoma would have shown an immense

(Continued on Page 170)

Oklahoma

Daily Average and Monthly Production in 1927

	January	February	March	April	May	June	July	August	September	October	November	December	Total
WASHINGTON COUNTY:													
Daily average	6,167	6,145	6,139	6,097	6,101	6,088	5,955	5,977	5,939	5,895	5,866	5,818	
Month	191,177	172,060	190,309	182,910	189,131	182,640	184,605	185,287	178,170	182,745	175,980	180,358	2,195,372
NOWATA COUNTY:													
Daily average	4,766	4,780	4,785	4,771	4,794	4,766	3,913	4,655	4,719	4,830	4,942	4,901	
Month	147,746	133,840	148,335	143,130	148,614	142,980	121,303	144,305	141,570	149,730	148,260	151,931	1,721,744
ROGERS COUNTY:													
Daily average	1,643	1,659	1,742	1,835	1,851	1,822	1,586	1,697	1,752	1,820	1,872	1,860	
Month	50,933	46,452	54,002	55,050	57,381	54,660	49,166	52,607	52,560	56,420	56,160	57,660	642,051
OSAGE AND EASTERN KAY COUNTIES:													
Burbank—													
Daily average	45,427	46,339	47,613	45,640	45,896	44,983	41,279	39,911	37,104	34,886	35,698	37,435	
Month	1,408,237	1,297,492	1,476,003	1,369,200	1,422,776	1,349,490	1,279,649	1,237,241	1,113,120	1,081,466	1,070,940	1,160,485	15,266,099
Osage, outside Burbank—													
Daily average	32,768	32,358	31,117	31,972	31,084	31,477	30,091	29,900	29,753	28,551	29,133	28,322	
Month	1,015,808	906,024	964,627	959,160	963,604	944,310	932,821	926,900	892,590	885,081	873,990	877,982	11,142,897
TULSA COUNTY:													
Bird Creek, Owasso, etc.—													
Daily average	3,785	3,776	3,779	3,785	4,292	3,814	3,714	3,704	3,666	3,714	3,701	3,682	
Month	117,335	105,728	117,149	113,560	133,052	114,420	115,134	114,824	109,980	115,134	111,030	114,142	1,381,478
Red Fork, Sand Springs, Bruner, Turkey Mountain and Fisher—													
Daily average	5,811	6,390	4,191	4,715	4,824	4,711	4,005	3,825	3,804	2,755	2,693	2,601	
Month	180,141	178,920	129,921	141,450	149,544	141,330	124,155	118,575	114,120	85,405	80,790	80,631	1,524,982
Bixby, Leonard and Jenks—													
Daily average	2,117	2,071	2,342	2,351	2,707	2,487	2,607	2,544	2,333	2,323	2,172	2,093	
Month	65,627	57,988	72,602	70,530	83,917	74,610	80,817	78,864	69,990	72,013	65,160	64,883	857,001
Broken Arrow and Coweta—													
Daily average	1,058	1,193	1,227	1,190	1,161	1,170	1,191	1,108	1,083	1,059	1,066	1,049	
Month	32,798	33,404	38,037	35,700	35,991	35,100	36,921	34,348	32,490	32,829	31,980	32,519	412,117
OKMULGEE, MUSKOGEE AND N. OKFUSKEE COUNTIES:													
Mounds, Beggs, Hamilton Switch, Youngstown—													
Daily average	8,816	8,642	8,590	8,516	8,483	8,382	8,301	8,288	8,136	7,513	7,465	7,393	
Month	273,296	241,976	266,290	255,480	262,973	251,490	257,331	256,928	244,080	232,903	223,950	229,183	2,995,880
Bald Hill and Haskell—													
Daily average	4,878	4,427	3,974	3,711	3,713	3,614	3,473	3,231	3,291	3,147	3,368	2,791	
Month	151,218	123,956	123,194	111,330	115,103	108,420	107,663	100,161	98,730	97,557	101,040	86,521	1,324,893
Morris, Boynton and Cole—													
Daily average	3,030	2,765	2,946	2,771	2,867	2,641	3,191	2,935	2,634	2,668	2,942	2,565	
Month	93,930	77,420	91,326	83,130	88,877	79,230	98,921	90,985	79,020	82,708	88,260	79,515	1,033,322
Okmulgee—													
Daily average	2,592	2,592	2,511	2,521	2,475	2,466	2,485	2,405	2,343	2,250	2,361	2,296	
Month	80,352	72,576	77,841	75,630	76,725	73,980	77,035	74,555	70,290	69,750	70,830	71,176	890,740
Tiger Flats, Henryetta, Schulter and Bartlett—													
Daily average	3,229	2,766	2,774	2,636	2,598	2,510	2,150	2,042	2,209	2,220	1,639	1,749	
Month	100,099	77,448	85,994	79,080	80,538	75,300	66,650	63,302	66,270	68,820	49,170	54,219	866,890
OKFUSKEE, SEMINOLE AND HUGHES COUNTIES:													
Seminole Field:													
Seminole City—													
Daily average	176,918	237,448	231,203	207,752	152,428	118,221	93,466	77,560	76,225	67,184	60,958	55,961	
Month	5,484,458	6,648,544	7,167,293	6,232,560	4,725,268	3,546,630	2,897,446	2,404,360	2,286,840	2,082,704	1,828,740	1,734,801	47,039,644
Earlsboro—													
Daily average	9,418	16,868	29,664	43,320	60,866	66,414	148,634	178,280	167,305	169,262	164,754	150,944	
Month	291,958	472,304	919,584	1,299,600	1,886,846	1,992,420	4,607,654	5,526,680	5,019,150	5,247,122	4,942,620	4,679,258	36,885,196
Searight—													
Daily average	.....	29,998	31,152	32,675	35,397	37,370	33,055	29,920	31,009	27,674	26,485	22,363	
Month	.....	839,944	965,712	980,250	1,097,307	1,121,100	1,024,705	927,520	930,270	857,894	794,550	693,259	10,232,511
Bowlegs—													
Daily average	.....	10,823	20,373	52,144	99,981	144,490	187,438	170,690	147,959	126,888	129,025	108,764	
Month	.....	303,044	631,563	1,564,320	3,099,411	4,334,700	5,810,578	5,291,390	4,438,770	3,933,528	3,870,750	3,371,679	36,649,733
Little River—													
Daily average	.....	.....	.....	.....	.....	.....	12,244	14,400	16,493	41,804	43,897	39,046	
Month	.....	.....	.....	.....	.....	.....	379,564	446,400	494,790	1,295,924	1,316,910	1,210,426	5,144,014
Total Seminole Field—													
Daily average	186,336	295,137	312,392	335,891	348,672	366,495	474,837	470,850	438,994	432,812	425,119	377,078	
Month	5,776,416	8,263,836	9,684,152	10,076,730	10,806,832	10,994,850	14,719,947	14,596,350	13,169,820	13,417,172	12,753,570	11,689,423	135,951,098
Deaner Lyons—													
Daily average	3,572	3,234	3,202	3,006	3,500	3,317	3,303	3,296	3,210	4,006	4,002	3,981	
Month	110,732	90,552	99,262	90,180	108,500	99,510	102,393	102,176	96,300	124,186	120,060	123,411	1,267,362
Wewoka—													
Daily average	22,025	16,540	16,982	17,646	19,735	19,175	18,684	15,690	14,269	13,160	10,670	9,338	
Month	682,775	463,120	526,442	529,380	611,785	575,250	579,204	486,390	428,070	407,960	320,100	289,481	5,899,957
Cromwell—													
Daily average	13,896	13,531	13,954	13,708	12,885	12,966	12,510	12,119	10,230	11,327	10,954	10,614	
Month	430,776	378,868	432,574	411,240	399,435	388,980	387,810	375,689	306,900	351,137	328,620	329,034	4,521,063
Papoose-Gilcrease—													
Daily average	7,977	7,787	7,215	7,394	7,243	6,842	6,415	6,441	6,337	5,998	5,967	5,605	
Month	247,287	218,036	223,665	221,820	224,533	205,260	198,865	199,671	190,110	185,938	179,010	173,755	2,467,994
Weleetka—													
Daily average	1,021	1,041	1,135	1,058	1,042	1,025	1,028	1,023	1,028	908	821	803	
Month	31,651	29,148	35,185	31,740	32,302	30,750	31,868	31,713	30,840	28,148	24,630	24,893	362,868
Holm-Jarvis—													
Daily average	1,673	1,553	1,473	1,350	1,533	1,488	1,369	1,177	970	1,011	1,037	1,006	
Month	51,863	43,484	45,663	40,500	47,523	44,640	42,439	36,487	29,100	31,341	31,110	31,186	475,336
Yeager—													
Daily average	503	488	457	467	523	491	706	629	546	579	525	406	
Month	15,593	13,664	14,167	14,010	16,213	14,730	21,886	19,499	16,380	17,949	15,750	12,595	192,436
Miscellaneous—													
Daily average	2,347	2,447	1,870	1,991	427	1,614	1,637	1,554	2,157	319	371	1,114	
Month	72,757	68,516	57,970	59,730	13,237	48,420	50,747	48,174	64,710	9,889	11,130	34,534	539,814
CREEK COUNTY:													
Cushing-Shamrock—													
Daily average	20,875	19,795	19,709	19,443	19,150	19,271	18,505	18,792	19,684	17,973	17,407	17,693	
Month	647,125	554,260	610,979	583,290	593,650	578,130	573,655	582,552	590,520	557,163	522,210	548,483	6,942,017
Glenn Pool-Sapulpa and Kiefer—													
Daily average	8,652	8,074	8,380	8,010	7,980	7,972	7,887	7,901	7,887	7,704	7,689	7,307	
Month	268,212	226,072	259,780	240,300	247,380	239,160	244,497	244,931	236,610	238,824	230,670	226,517	2,902,953
Bristow, Kellyville and Depew—													
Daily average	23,891	23,137	22,509	21,975	21,813	21,816	19,224	20,241	19,665	19,673	17,916	17,703	
Month	740,621	647,836	697,779	659,250	676,203	654,480	595,944	627,471	589,950	609,863	537,480	548,793	7,585,670
North Bristow and Pickett Prairie—													
Daily average	2,289	3,287	4,457	3,440	4,309	4,104	5,067	4,942	3,761	3,232	2,801	2,756	
Month	70,959	92,036	138,167	103,200	133,579	123,120	157,077	153,202	112,830	100,192	84,030	85,436	1,353,828
Eastern Bristow or Slick—													
Daily average	5,102	4,833	4,794	4,696	4,583	4,410	4,406	4,512	4,815	5,002	5,310	5,609	
Month	158,162	135,324	148,614	140,880	142,073	132,300	136,586	139,872	144,450	155,062	159,300	173,879	1,766,502
PAWNEE COUNTY:													
Cleveland—													
Daily average	3,963	3,745	3,590	3,407	3,382	3,291	3,262	3,204	3,143	3,040	2,873	2,878	
Month	122,853	104,860	111,290	102,210	104,842	98,730	101,122	99,324	94,290	94,240	86,190	89,218	1,209,169
Keystone—													
Daily average	3,138	3,539	4,047	3,277	3,015	3,002	2,849	2,827	2,586	2,483	2,480	2,950	
Month	97,278	99,092	125,457	98,310	93,465	90,060	88,319	87,637	77,400	76,973	74,400	91,450	1,099,841
Jennings—													
Daily average	4,064	3,922	3,813	3,757	3,818	3,740	3,434	3,254	3,086	3,104	3,109	3,014	
Month	125,984	109,816	118,203	112,710	118,358	112,200	106,454	100,874	92,580	96,224	93,270	93,434	1,280,107
Otoe or Watchorn—													
Daily average	2,784	2,914	2,481	2,290	2,217	2,144	1,609	1,499	1,609	1,492	1,122	1,086	
Month	86,304	81,592	76,911	68,700	68,727	64,320	49,879	46,469	48,270	46,252	33,660	33,666	704,750
Masham—													
Daily average	40	133	40	40	40	39	45	35	30	30	30	31	
Month	1,240	5,124	1,240	1,200	1,240	1,170	1,395	1,085	900	930	900	961	17,385
Ralston—													
Daily average	170	40	182	182	177	174	169	165	163	164	142	141	
Month	5,270	1,120	5,673	5,640	5,487	5,220	5,239	5,115	4,890	5,084	4,260	4,371	57,369
PAYNE COUNTY:													
Yale, Quay and Ingalls—													
Daily average	5,475	5,225	5,647	5,630	5,541	5,074	5,355	5,137	5,291	5,076	5,014	4,713	
Month	169,725	146,300	175,057	168,900	171,771	152,220	166,005	159,247	158,730	157,356	150,420	146,102	1,921,834

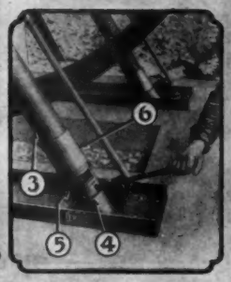
(Table Continued on Page 126)

EMSCO

A Complete Line of Better Oil Well Equipment

EMSCO UNITARY MACHINE SUPPORT

Type 7-D All Steel



Screw jack and horse-shoe shims facilitate quick and easy adjustment

Positive, Unyielding Rigidity

Showing the rigid bracing of posts with turnbuckle rods for lining up

Built to withstand the most severe shocks of cable tool drilling and the hardest pumping service, the unyielding rigidity of the Emsco Unitary Machine Support is reflected in the smooth operation of the band wheel.

Lateral post braces of ample strength [1] eliminate any tendency toward side sway or weaving.

The posts are lined up to the fraction of an inch by means of turnbuckle rods [2], and are rigidly held in place by extra heavy tubing braces [3].

Tubing braces are provided with special screw jacks [4] at the lower end of each support, permitting precise adjustment of the band wheel.

Horse-shoe adjusting shims [5], which can be slipped around the jack screw, under the jack screw nut, are provided to relieve the threads of any strain after adjustment is made.

A sliding sleeve [6] prevents the shims from working out after they have been inserted, maintaining the correct adjustment under all stresses.

All parts of the complete unit are readily knocked down, and easily erected. Detailed specifications and information supplied on request.

EMSCO

Derrick & Equipment Company

Los Angeles California
Houston Texas
New York Office 150 Broadway
Factory Branch at Tulsa

EMSCO STEEL EQUIPPED WELLS ARE SAFE

BP Gears in Hild Drives

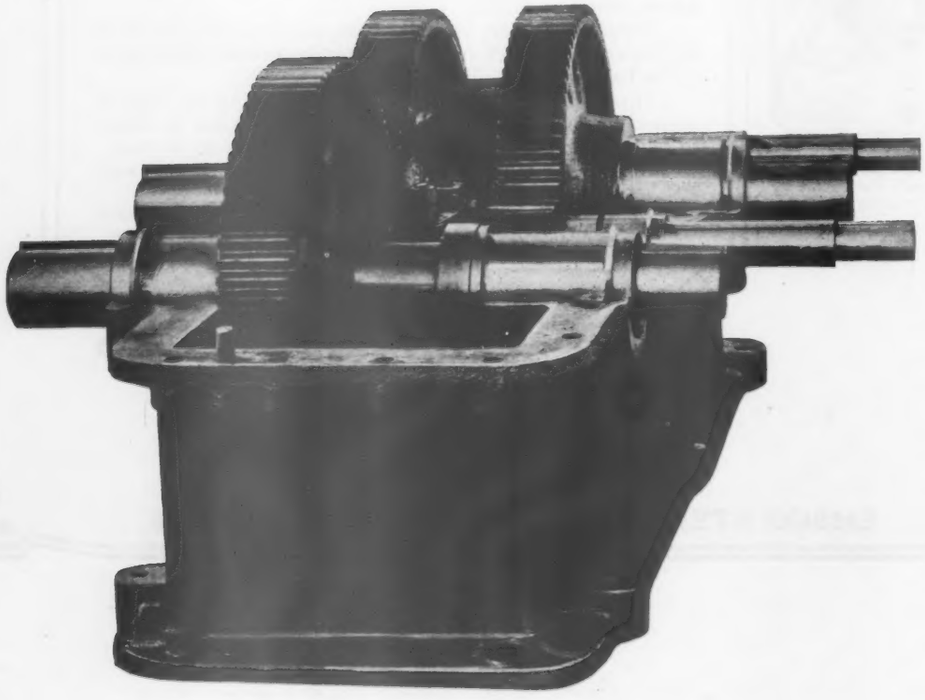
The success of the Hild Differential Drive has been phenomenal and its use has revolutionized rotary oil well drilling.

When the Oil Well Supply Company wanted someone to build a gear unit able to stand the terrific demands of deep rotary drilling, they came to the Nuttall Company. Exceptional manufacturing facilities, plus long experience in gear cutting and reduction unit manufacture has enabled us to build into the Hild Drives the wear resistant qualities so characteristic of Nuttall Pump Gear Units.

The gears in the Hild Drive are treated by the famous BP "tough-hard" process—the most successful ever developed for the treatment of gear steel. Hild Drives that have drilled as high as fourteen wells, show practically no wear on the gears—convincing proof of the gear quality.

R. D. NUTTALL CO.—Pittsburgh, Pa.

Dallas—Magnolia Bldg. Los Angeles, 420 S. San Pedro St.
Houston, Union Nat'l Bank Bldg. Tulsa—923 Mid-Continent Bldg.
Oil Well Supply Co., Authorized Distributor of Nuttall Pump Gear Units



Producing at Seminole

Nuttall, double reduction, pump gear units are helping producers in the Seminole field to pump the maximum amount of oil at a minimum cost. Nuttall double reduction units have eliminated belts, and the troublesome shutdowns they cause. They have eliminated the cumbersome inefficient band wheel. They are giving a definite, positive drive of high mechanical efficiency.

Send for our Oil Well Bulletin

R. D. NUTTALL CO., Pittsburgh, Pa.

Dallas—Magnolia Bldg. Los Angeles—420 S. San Pedro St.
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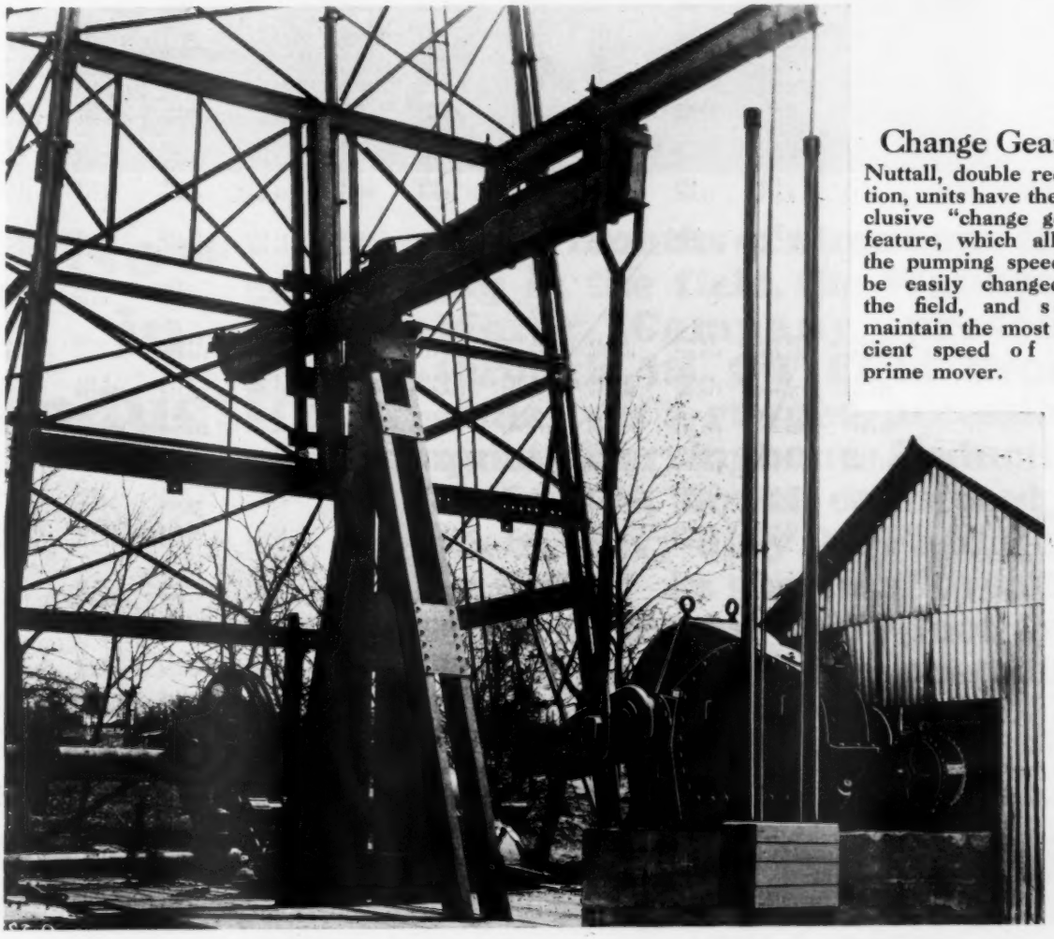
Oil Well Supply Co.—*Authorized Distributor*



Change Gears

Nuttall, double reduction, units have the exclusive "change gear" feature, which allows the pumping speed to be easily changed in the field, and still maintain the most efficient speed of the prime mover.

Nuttall

Oklahoma

Daily Average and Monthly Production in 1927

	January	February	March	April	May	June	July	August	September	October	November	December	Total
N. Cushing or March Pool—													
Daily average	2,532	2,360	2,145	1,707	3,297	3,014	2,818	4,117	3,987	3,848	3,749	3,069	
Month	78,492	66,080	66,495	51,210	102,207	90,420	87,358	127,627	119,610	119,288	112,470	95,139	1,116,396
Deep Rock—													
Daily average	3,203	3,188	3,667	3,010	2,752	1,214	2,407	2,495	2,942	2,897	3,175	3,387	
Month	99,293	89,264	113,677	90,300	85,312	36,420	74,617	77,345	88,260	89,807	95,250	104,997	1,044,542
LINCOLN COUNTY:													
Stroud—													
Daily average	1,670	1,542	1,429	1,539	1,450	1,004	1,216	1,239	1,249	1,234	1,217	1,102	
Month	51,770	43,176	44,299	46,170	44,950	30,120	37,696	38,409	37,470	38,254	36,510	34,162	482,986
Davenport—													
Daily average	4,235	3,947	3,942	3,753	3,555	3,282	3,239	3,096	2,995	2,893	2,756	2,615	
Month	131,285	110,516	122,202	112,590	110,205	98,460	100,409	95,976	89,850	89,683	82,680	81,065	1,224,921
Kendrick—													
Daily average	694	697	784	643	640	569	611	543	561	523	533	487	
Month	21,514	19,516	24,304	19,290	19,840	17,070	18,941	16,833	16,830	16,213	15,990	15,097	221,438
KAY, GRANT AND NOBLE COUNTIES:													
Blackwell—													
Daily average	1,471	1,407	1,535	1,128	1,474	1,363	1,451	1,268	1,273	1,262	1,120	1,210	
Month	45,601	39,396	47,585	33,840	45,694	40,890	44,981	39,308	38,190	39,122	33,600	37,510	485,717
Otstot—													
Daily average	1,903	1,676	1,725	1,562	1,390	1,441	1,174	1,165	1,133	1,061	1,024	974	
Month	58,993	46,928	53,475	46,860	43,090	43,230	36,394	36,115	33,990	32,891	30,720	30,194	492,880
Vernon—													
Daily average	580	705	690	656	945	808	813	826	709	728	670	612	
Month	17,980	19,740	21,390	19,680	29,295	24,240	25,203	25,606	21,270	22,568	20,100	18,972	266,044
Deer Creek—													
Daily average	134	118	182	650	685	616	773	898	1,468	1,867	1,524	1,226	
Month	4,154	3,304	5,642	19,500	21,235	18,480	23,963	27,838	44,040	57,877	45,720	38,006	309,759
Ponca City—													
Daily average	740	759	761	758	754	749	824	339	738	724	683	673	
Month	22,940	21,252	23,591	22,740	23,374	22,470	25,544	10,509	22,140	22,444	20,490	20,863	258,357
Mervine—													
Daily average	284	277	261	261	312	299	331	336	322	311	271	294	
Month	8,804	7,756	8,091	7,830	9,672	8,970	10,261	10,416	9,660	9,641	8,130	9,114	108,345
North Braman—													
Daily average	17,303	10,149	10,471	9,782	6,415	3,944	2,965	3,165	2,802	2,761	1,826	1,922	
Month	536,393	284,172	324,601	293,460	198,865	118,320	91,915	98,115	84,060	85,591	54,780	59,582	2,229,854
South Braman—													
Daily average	4,781	4,280	8,447	4,799	3,115	3,612	2,730	2,569	2,464	2,154	3,387	2,253	
Month	148,211	119,840	261,857	143,970	96,565	108,360	84,630	79,639	73,920	66,774	101,610	69,843	1,355,219
Hubbard—													
Daily average	4,889	6,488	5,759	6,177	7,751	6,490	5,360	4,687	4,005	3,539	2,698	2,709	
Month	151,559	181,664	178,529	185,310	240,281	194,700	166,160	145,297	120,150	109,709	80,940	83,979	1,838,278
Thomas—													
Daily average	1,820	1,483	1,660	1,565	1,521	5,009	4,733	4,638	3,930	2,754	2,105	1,897	
Month	56,420	41,524	51,460	46,950	47,151	150,270	146,723	143,778	117,900	85,374	63,150	58,807	1,009,507
Tonkawa—													
Daily average	28,957	26,712	25,958	22,274	22,312	21,493	20,025	20,850	18,924	16,816	15,314	15,376	
Month	897,667	747,936	804,698	668,220	691,672	644,790	620,775	646,350	567,720	521,296	459,420	476,656	7,747,200
Billings—													
Daily average	304	334	314	269	291	278	238	236	243	259	253	188	
Month	9,424	9,352	9,734	8,070	9,021	8,340	7,378	7,316	7,290	8,029	7,590	5,828	97,372
Miscellaneous—													
Daily average	174	176	433	477	495	462	425	850	1,469	1,023	1,108	1,075	
Month	5,394	4,928	13,423	14,310	15,345	13,860	13,175	26,350	44,070	31,713	33,240	33,325	249,193
GAFIELD COUNTY:													
Garber—													
Daily average	21,527	19,546	18,835	17,642	15,754	14,116	11,869	11,737	11,125	11,188	10,851	10,168	
Month	667,337	547,288	583,885	529,260	488,374	423,480	367,939	363,847	333,750	346,828	325,530	315,208	5,292,726
LOGAN COUNTY:													
Marshall—													
Daily average	.....	.....	.....	.....	.....	.....	2,386	2,370	2,537	2,366	2,318	2,251	
Month	.....	.....	.....	.....	.....	.....	73,966	73,470	76,110	73,346	69,540	69,781	436,213
CARTER COUNTY:													
Healdton—													
Daily average	14,857	14,920	15,062	15,146	15,142	14,937	15,058	15,189	14,884	14,834	14,442	14,624	
Month	460,567	417,760	466,922	454,380	469,402	448,110	466,798	470,859	446,520	459,854	433,260	453,344	5,447,776
Hewitt—													
Daily average	10,252	9,931	10,027	10,153	9,165	9,610	9,830	9,531	9,339	9,499	9,229	8,993	
Month	317,812	278,068	310,837	304,590	308,915	288,300	304,730	295,461	280,170	294,469	276,870	278,783	3,539,005
Graham—													
Daily average	6,602	6,260	5,935	5,823	5,592	5,317	5,247	5,048	4,973	4,993	4,748	4,553	
Month	204,662	175,280	183,985	174,690	173,352	159,510	162,657	156,488	149,190	154,783	142,440	141,143	1,978,180
Fox—													
Daily average	3,786	3,955	3,790	3,776	3,740	3,682	3,914	3,765	3,732	3,604	2,784	3,182	
Month	117,366	110,740	117,490	113,280	115,940	110,460	121,334	116,715	111,960	111,724	83,520	98,642	1,329,171
Brock—													
Daily average	1,390	1,300	1,294	1,238	1,136	1,121	1,080	1,041	994	979	951	919	
Month	43,090	36,400	40,114	37,140	35,216	33,630	33,480	32,271	29,820	30,349	28,530	28,489	408,529
Tussy or Sholem Alechem—													
Daily average	12,694	13,429	14,503	16,192	16,526	16,950	15,295	16,511	13,334	12,528	12,475	12,297	
Month	393,514	376,012	449,593	485,760	512,306	508,500	474,145	511,841	400,020	388,368	374,250	381,207	5,255,516
STEPHENS-COTTON COUNTIES:													
Loco-Milroy—													
Daily average	2,291	2,267	2,270	2,261	2,237	2,211	2,296	2,296	2,466	2,238	2,231	2,214	
Month	71,021	63,476	70,370	67,830	69,347	66,320	71,176	71,176	73,980	69,378	66,930	68,634	829,638
Comanche—													
Daily average	795	790	842	802	894	853	958	773	829	723	715	706	
Month	24,645	22,120	26,102	24,060	27,714	25,590	29,698	23,963	24,870	22,413	21,450	21,886	294,511
Duncan—													
Daily average	5,015	5,266	5,363	6,569	5,752	5,664	5,061	5,478	5,154	5,181	5,690	5,645	
Month	155,465	147,448	166,253	197,070	178,312	169,920	156,891	169,818	154,620	160,611	170,700	174,995	2,002,103
Walters—													
Daily average	1,050	882	851	852	851	846	940	941	941	970	970	999	
Month	32,550	24,696	26,381	25,560	26,381	25,380	29,140	29,171	28,230	30,070	29,100	30,969	337,628
Kilgore—													
Daily average	151	157	152	151	154	152	166	245	233	202	196	196	
Month	4,681	4,396	4,712	4,530	4,774	4,560	5,146	7,595	6,990	6,262	5,880	6,076	65,602
JEFFERSON COUNTY:													
Hambro—													
Daily average	2,265	2,158	2,100	2,040	1,946	1,883	1,797	1,767	1,805	1,766	1,711	1,661	
Month	70,215	60,424	65,100	61,200	60,326	56,490	55,707	54,777	54,150	54,746	51,330	51,491	695,956
CADDO COUNTY:													
Cement—													
Daily average	1,851	1,946	1,871	1,936	1,983	1,944	1,927	1,927	1,982	1,992	2,047	1,959	
Month	57,381	54,488	58,091	58,080	61,473	58,320	59,737	59,737	59,460	61,752	61,410	60,729	710,568
GARVIN COUNTY:													
Robberson—													
Daily average	2,922	2,842	2,852	2,813	2,793	2,716	2,547	2,433	2,296	2,270	2,352	2,232	
Month	90,582	79,576	88,412	84,390	86,583	71,480	78,957	75,423	68,880	70,370	70,560	69,192	944,405
GRADY COUNTY:													
Knox—													
Daily average	4,076	6,169	6,208	8,283	9,210	9,014	9,123	8,673	8,673	7,175	7,124	7,106	
Month	126,356	172,732	192,448	248,490	285,510	270,420	282,813	268,863	260,190	222,426	213,720	220,286	2,764,254
BECKHAM COUNTY:													
Sayre—													
Daily average	55	61	54	55	57	56	62	62	46	46	47	46	
Month	1,705	1,708	1,674	1,650	1,767	1,680	1,922	1,922	1,380	1,426	1,410	1,426	19,670
PONTOTOC COUNTY:													
Allen, Lloyd, Francis—													
Daily average	485	481	519	652	649	647	1,643	2,295	3,045	4,468	7,332	7,337	
Month	15,035	13,468	16,089	19,560	20,119	19,410	50,933	71,145	91,350	138,508	219,960	227,447	903,024
POTTAWATOMIE COUNTY:													
Maud—													
Daily average	316	316	314	1,574	2,186	4,141	953	823	1,347	1,720	3,101	2,710	
Month	9,796	8,848	9,734	47,220	67,766	29,230	29,543	25,513	40,410	53,320	93,030	84,010	593,420
Pearson—													
Daily average	.....	.....	.....	.....	.....	.....	4,931	3,957	4,412	3,914	4,362	4,978	
Month	.....	.....	.....	.....	.....	.....	152,861	122,667	132,360	121,334	129,060	154,318	812,600
MARSHALL COUNTY:													
Madill—													
Daily average	112	112	126	128	121	122	108	145	140	129	140	174	
Month	3,472	3,136	3,906	3,840	3,751	3,660	3,348	4,495	4,200	3,999	4,200	5,394	47,401
Daily average	614,046	705,441	725,191	740,271	750,273	761,011	855,566	847,850	803,722	782,163	769,446	716,400	756,225
Total 1927	19,035,426	19,752,348	22,480,921	22,208,130	22,258,463	22,830,330	26,522,546	26,283,350	24,111,660	24,247,053	23,083,380	22,208,417	276,022,024
Total 1926	13,674,813	12,392,016	14,312,886	14,468,190	14,507,008	14,073,510	14,657,482	14,618,236	14,466,510	15,720,689	16,876,950	17,882,908	177,651,196
Total 1925	15,462,800	13,905,780	14,403,716	14,055,450	14,443,675	13,832,970	14,263,565	14,441,040	14,525,040	14,921,199	14,590,980	14,123,848	173,370,063
Total 1924	12,292,833	12,236,437	13,336,851	13,452,240	14,247,597	14,447,390	15,191,860	16,525,356	16,290,030	16,189,898	15,955,620	16,031,185	176,206,397
Total 1923	13,328,574	12,045,020	12,958,828	14,399,610	15,658,782	15,572,730	15,260,184	14,049,076	12,812,220	12,961,782	12,334,620	12,232,259	165,013,685

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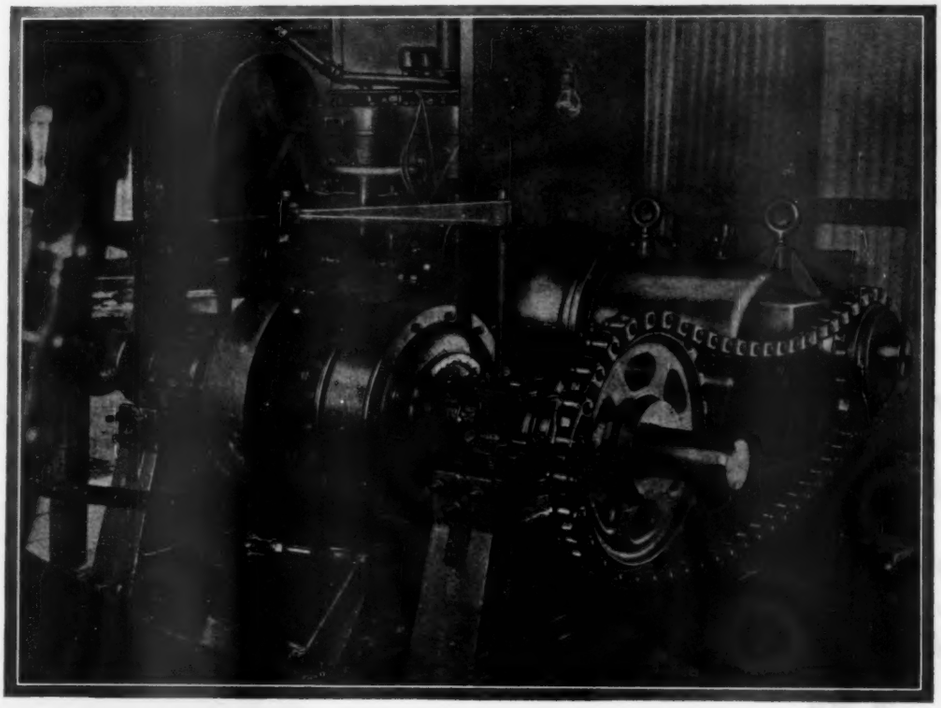

P-803-XL

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P-809-L

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Development of a Great Gas Area

Decline in Production of Oil in Texas Panhandle Followed by Discovery of a Remarkable Storehouse of Fuel and Power

By James H. Dameron
Staff Correspondent, Texas Panhandle

To most operators with holdings in that sweeping country, the Panhandle's 1927 picture was not one to be hung in the gallery. There are among those operators those who would draw the curtain over it.

Too much Seminole, Yates, Hendricks—in fact, too much from almost every other oil-producing section, held the Panhandle in the recesses of a dark shadow. A 65,000-bbl. drop in daily average production; crude cut to 75 cents per barrel, with some of it hard to dispose of at that figure; a drop in field operations from 500 to 150 in 12 months, tells concisely what the gloom is in the 1927 history.

Gray County and the more permanent developments for the district, with occasional flashes from various sectors of the district, animated what was otherwise a none too lively year.

While petroleum production of the area was out of the sensational picture, Panhandle nevertheless had an epochal year in the development of the natural gas industry and its greatest year in pipe line building. Approximately $100,000,000 was invested in trunk lines that will deliver gas to distributing systems in five states.

During 1926 when Panhandle was reaching its peak production of 165,710 bbls., the enormous gas reservoir spreading under several counties was revealing itself. Soon after the opening of the past year the gas industry was entrenched in the world's largest gas field The natural gasoline industry likewise expanded while manufacture of carbon black in the Panhandle increased.

Three Oil Trunk Lines Built

Three oil trunk lines were built into the Panhandle and afforded the field its first trunk line outlet. Prairie Oil & Gas Co. built an 8-inch carrier east to Ringling, Okla. The line has not been operated to capacity, however, because of the falling off of demand for Panhandle crude in eastern markets.

Gulf Pipe Line Co. and Magnolia Pipe Line Co. built a 235-mile combination 10-inch line to Ranger to intersect those companies' trunk systems south to the Gulf. That line has been running only a few thousand barrels during recent weeks because the flood in West Texas is holding back shipments from the north. Humble Pipe Line Co. completed a 360-mile carrier with 10-inch pipe to Comyn to connect with its main line south. It has been operating almost to capacity since its completion. These three lines have played a prominent part in keeping storage from piling up in the field and as a result the storage figure has hovered around the 18,000,000-bbl. mark for some time.

The Panhandle's largest gas trunk line project is now under construction and its cost will boost the investment in gas trunk lines to around $100,000,000. It will be the Colorado Interstate Gas Co.'s 350-mile line to Denver, Colo., and will operate in Texas under the name of the Canadian River Gas Co. The line will be built with 20 and 22-inch pipe with 44 miles of 10 and 12-inch laterals. The cost of the project is approximately $22,000,000.

Gas Lines South

West Texas Gas Co, Amarillo (Prairie Oil & Gas Co.) built a 16-15 and 10-inch line from northeastern Potter County as far south as Slaton in the South Plains country. The line is 217 miles in length and reached into virgin territory, rapidly developing as a strong agricultural country. The same company is considering extending its mains on south to Midland.

Two other main line systems have been built south to reach into the North Texas country. Lone Star Gas Co. completed a 200-mile combination welded and coupled 18-inch line from the Shamrock area in Wheeler County to Petrolia in Clay County. The line ties into the Lone Star company's main line system at Petrolia. Northern Texas Utilities Co. of Wichita Falls built a 170-mile 16-inch line south from Shamrock to Wichita Falls and has laterals reaching out into the southeastern part of the Panhandle.

Empire Gas & Fuel Co. has completed a 400-mile 20-inch line from Panhandle to Wichita, Kans., and may extend the system on to Kansas City, Mo. The Knorpp interests of Amarillo have completed plans for a 22-inch line from Panhandle to Kansas City, Mo., but construction work has not started.

Natural Gasoline Growth

While the natural gasoline industry has not expanded remarkably during the past year in the Panhandle it nevertheless has shown a healthy growth. Production of natural gasoline in the district ranges from 8,500 to 9,000,000 gallons monthly. Most of the product is manufactured by plants located in Hutchinson County which turn out around 6,000,000 gallons monthly. Carson is the next ranking county in natural gasoline production with around 1,400,000 gallons monthly.

To utilize a considerable part of the dry gas from the gasoline plants several carbon black plants have been erected and permits have been issued for the erection of more plants in the Panhandle. Figures on gas consumption by carbon black plants are not available but authorities estimate carbon black production has shown a sharp increase in the past few months in the Panhandle.

Several trades have been made during 1927 by production companies augmenting their gas holdings in the Panhandle. However, most of the trunk line companies' affiliated producing companies were well protected for the future. Drilling for gas has been carried on slowly because the present producing gas wells are amply taking care of the drafts being made by pipe line companies.

The accompanying map shows the probable limits of the gas-producing territory in the Panhandle. It is from a map prepared by C. Max Bauer, chief geologist of the Midwest Exploration Co., revised according to later drilling. It graphically illustrates the influence the gas industry will have in the future of the Panhandle.

So far as oil production is concerned, Gray County was the Panhandle in 1927, especially during the latter part of the year. Production of the entire field fell off rapidly during the 12 months. At the opening of the year 805 wells were producing 146,000 bbls. daily and at the end of the year production was down to 80,000 bbls. from 1,400 wells.

Several factors figured in the decline of the field. When the depression made itself felt in the Panhandle operations dwindled with the subsequent fall in flush production. Production was curtailed by the simple method of not cleaning out wells in numerous instances, and the natural decline made up the balance, which was no small factor.

New Areas in Hutchinson

Two areas in Hutchinson County

Texas Panhandle

Daily Average and Monthly Production in 1927

	January	February	March	April	May	June	July	August	September	October	November	December	Total
CARSON COUNTY—													
Daily average	4,992	6,440	6,296	10,635	13,990	11,966	10,318	9,422	8,072	7,909	7,759	7,396	
Month	154,752	180,320	195,176	319,050	433,690	358,980	319,858	292,082	242,160	245,179	232,770	229,276	3,203,293
HUTCHINSON COUNTY—													
Daily average	113,902	110,333	101,739	103,308	106,947	101,114	89,648	77,830	76,639	67,633	58,163	54,380	
Month	3,530,962	3,089,324	3,153,909	3,099,246	3,315,357	3,033,420	2,779,088	2,412,730	2,299,170	2,096,623	1,744,890	1,685,780	32,240,493
MOORE COUNTY—													
Daily average	.....	10	10	10	15	70	106	43	5	21	73	5	
Month	.....	280	310	300	465	2,100	3,286	1,333	150	651	2,190	155	11,220
WHEELER COUNTY—													
Daily average	1,520	1,443	2,045	2,650	2,561	2,456	2,239	1,582	1,472	1,230	1,229	1,190	
Month	47,120	40,404	63,395	79,500	79,391	73,680	69,409	49,042	44,160	38,130	36,870	36,890	657,991
GRAY COUNTY—													
Daily average	8,749	7,749	7,749	8,347	11,113	11,510	9,265	10,169	9,900	11,429	15,699	18,486	
Month	271,219	216,972	240,219	250,410	344,503	345,300	287,215	315,239	297,000	354,299	470,970	573,066	3,966,412
POTTER COUNTY—													
Daily average	.....	35	51	37	25	30	34	44	.....	27	28	30	
Month	.....	980	1,581	1,110	775	900	1,054	1,364	.....	837	840	920	10,371
Daily average	129,163	126,010	117,890	124,987	134,051	127,146	111,610	99,090	96,088	88,249	82,951	81,487	109,802
Total 1927	4,004,053	3,528,280	3,654,590	3,749,610	4,174,181	3,814,380	3,459,910	3,071,790	2,882,640	2,735,719	2,488,530	2,526,097	40,089,780
Total 1926	157,077	152,264	245,024	393,860	876,897	1,430,400	2,023,742	2,973,848	3,421,890	4,534,339	4,595,220	4,741,326	25,545,887

North Texas

Daily Average and Monthly Production in 1927

	January	February	March	April	May	June	July	August	September	October	November	December	Total
BURKBURNETT—													
Daily average	13,292	12,876	13,210	13,209	13,204	13,211	12,676	12,142	12,094	11,755	11,717	11,616	
Month	412,052	360,528	409,510	396,270	409,449	396,330	392,956	376,402	362,820	364,405	351,510	360,096	4,592,203
ELECTRA—													
Daily average	13,914	13,923	14,970	14,972	14,988	14,996	14,312	13,653	13,588	12,868	12,796	12,694	
Month	431,334	389,844	464,070	449,160	464,628	449,880	443,672	423,243	407,640	398,753	383,880	393,514	5,099,618
IOWA PARK, K. M. A.—													
Daily average	4,511	4,459	4,123	4,121	3,969	4,016	3,855	3,711	3,614	3,504	3,477	3,444	
Month	139,841	124,852	127,813	123,630	123,039	120,480	119,505	115,041	108,420	108,624	104,310	106,764	1,422,319
ARCHER COUNTY—													
Daily average	29,120	29,114	29,689	29,413	29,414	28,140	26,671	24,852	24,501	22,626	22,319	21,578	
Month	902,720	815,192	920,359	882,390	911,834	844,200	826,801	770,412	735,030	701,406	669,570	668,918	9,648,832
CLAY COUNTY—													
Daily average	845	728	699	757	749	705	688	570	544	546	541	547	
Month	26,195	20,384	21,669	22,710	23,219	21,150	21,328	17,670	16,320	16,926	16,230	16,957	240,758
WILBARGER COUNTY—													
Daily average	13,034	13,869	13,123	13,500	13,488	13,116	12,853	11,463	11,407	10,409	10,417	10,186	
Month	404,054	388,332	406,813	405,000	418,128	393,480	398,443	355,353	342,210	322,679	312,510	315,766	4,462,768
MONTAGUE COUNTY—													
Daily average	12,103	12,487	14,205	12,987	12,714	12,403	11,666	10,842	10,876	9,743	9,779	9,703	
Month	375,193	349,636	440,355	389,610	394,134	372,090	361,646	336,102	326,280	302,033	293,370	300,793	4,241,242
YOUNG COUNTY—													
Daily average	5,065	4,840	5,097	5,090	1,826	11,647	10,404	12,950	13,219	10,421	11,614	11,676	
Month	157,015	135,520	158,007	152,700	366,606	349,410	322,524	401,450	396,570	323,051	348,420	361,956	3,473,229
BAYLOR COUNTY—													
Daily average	103	100	98	109	101	97	86	39	89	87	86	77	
Month	3,193	2,800	3,038	3,270	3,131	2,910	2,666	2,759	2,670	2,697	2,580	2,387	34,101
COOKE COUNTY—													
Daily average	1,069	1,219	1,443	2,016	2,860	3,833	4,961	6,284	6,161	5,426	5,292	4,951	
Month	33,139	34,132	44,733	60,480	88,660	114,990	153,791	194,804	184,830	168,206	158,760	153,481	1,390,006
Daily average	93,056	93,615	96,657	96,174	103,813	102,164	98,172	96,576	96,093	87,380	88,038	86,472	94,506
Month	2,884,736	2,621,220	2,996,367	2,885,220	3,202,703	3,064,920	3,043,332	2,993,236	2,882,790	2,708,780	2,641,140	2,680,632	34,605,076

loomed on the horizon for a few weeks but neither lived up to expectations. However, the McIlroy Pool, a 1927 development, eclipsed one record during its early days. In that pool the McIroy Oil Co.'s No. 1 Ellis Cockrell, NE cor. Section 4, Block B-3, D. & S. E. Survey, southeastern Hutchinson, came in April 23 making better than 500 bbls. per hour to break all big well records in the Panhandle. Several good wells were brought in in that pool but as a whole the pool did not develop into as a great a pool as was expected. Like most of the Panhandle, the pool was spotted with hard and soft spots in the lime.

Sanford area in southwestern Hutchinson was given a fairly strong play during the past year but did not develop as good as the McIlroy Pool. Tremendous gas wells in that area were frequent and several disastrous fires took a toll of lives when a number of the wells ignited. The gas was difficult to drill through and few of the wells that went through the gas zone made good producers.

Despite the heavy flush made by a number of Hutchinson County wells the average initial production of the 837 oil wells completed in the county during 1927 was 25.24 bbls.

Wildcatting in 1927

Wildcatting in the Panhandle was on a bullish swing at the opening of the old year and at the close of the year 26 counties tallied one or more wildcat completions. Several counties not included in the total are being drilled at the present. Singling out any particular section one can't overlook the strong play made towards the northwest trend of the field.

Activity and excitement went hand in hand to the northwest for some time as the several wildcats in that general trend picked up showings. A. D. Morton & Co.'s No 1 Reeder, Section 191, Block 3-T, T. & N. O. Survey, Moore County, made 225 bbls. of 32.8 gravity oil from pay at 3,373 to 3,422½ feet. The well did not maintain that production and is now shut down for storage. It was drilled into water at 3,422½-24½ feet and then plugged back.

As a result of that find the northwest developed a "hot" play with acreage buying extending into Dallam, Swisher, Hartley and Hansford Counties. Several tests were drilled in that general area of Moore County and made good gas wells. A few months later the Skelly Oil Co. drilled a wildcat producer in the SW cor. Freeman Brazemore Survey, Moore County. The well was close to the Hutchinson County line and a few miles east of the old Cadman well. It was a rated 150-bbl. producer of 32 gravity crude from 3,179 to 3,212 feet. The Skelly Oil Co. is drilling its second well on the tract and on the Hutchinson County side of the line.

However, the bullish play in the northwest has quieted down considerably in past weeks. Most of the major operating companies in the Panhandle had considerable scattered holdings to the northwest when the play opened and they were in the market for only a small portion of the acreage.

Carson County

Save for the Skelly Oil Co.'s discovery on the Henry Schafer ranch in northwestern Carson County between the Roxana and Noel-McConnell Pools there was little developed in that county. Skelly company's well on the Shafer ranch is expected to eventually connect the two pools.

Wheeler County figured in the weekly reports with occasional flashes. The Texas Company got a likely looking showing in a wildcat southeast of the Shamrock Pool and the same pool was extended to the northwest late in the year.

The Shamrock area chalked up a record in gas wells when the Watchorn Oil & Gas Co.'s No. 1 F. E. Shelton, C NE NE, Section 22, Block 24, came in making around 200,000,000 feet of gas at 1,905-26 feet. The well is in an area where two gas trunk lines originate.

Throughout the year, Gray County was more or less in the limelight and towards the close of the year it was the most prominent county of the Panhandle. Two separate pools were discovered and the play northwest and southeast across the county brought about many significant developments. Gray County produces a "sweet" crude of high gravity that enjoys a steady demand. All the way across the county wildcats have "hit the grease" with something akin to regularity.

Scientists and Oil Men

During its early development, Gray County was dotted with a rather unusual number of dry holes. The assistance of geophysical instruments in "placing" the granite ridges against the sides of which the production accumulates has been an important factor not only in acreage buying campaigns but has resulted in confining the recent drilling to zones which are proving promising.

In the early developments it was held that the granite ridge formed the core of the main anticlinal structure. Geophysical instruments brought into use during the past year have proven that in Gray County the structure is dominated by a series of granite ridges roughly parallel and probably disconnected. As drilling progresses it is being proved that several producing localities exist along the flanks of these ridges. It appears that these productive areas are not continuous but it is believed that several good pools will be developed in the future.

Northwest from the Pampa Pool to the Noel-McConnell Pool several wells have been completed as producers. None, however, has brought in big flush production. With a couple of exceptions, the same is true for the general strip of country running east from the Pampa Pool to the central eastern line of the county. At the present those areas are being favored by the wildcat play.

The Gulf-Saunders Pool just east of the Pampa Pool was the first of Gray County's two new pools to be developed. It started when Gulf Production Co. put off a shot in granite wash that was generally believed to be commercially unproductive. The well responded making around 3,000 bbls. However, subsequent drilling in that pool failed to drill into anything as profitable as the Gulf company's well.

South of the Pampa Pool the Bowers Pool activity opened when the Gulf Production Co. brought in a well from granite wash pay that made 85 bbls. per hour. The pool discovery was by the Majestic Oil Co. when that company drilled a 300-bbl. well in what is now Bowers. The activity started, however, upon the completion of the Gulf Production Co.'s well. That was followed by the Delaney well which made 6,000 bbls. initially of 44 gravity crude. Numerous good wells have been completed in the pool since. Like other areas in the Panhandle, it is erratic in spots, with good production being offset by poor production.

As the result of the new pools, Gray County had the best average initial production of Panhandle wells with the exception of the two new wells in Moore County. The 105 oil wells drilling in Gray had a combined flush production of 39,236 bbls. or an average of 37.36 bbls. per well.

TEXAS PANHANDLE
Completions by Counties

County—	Comp.	Prod.	Dry	Gas
Armstrong	2	0	2	0
Brisco	1	25,414	1	0
Carson	130	5,930	7	20
Castro	2	0	2	0
Childress	2	0	2	0
Collingsworth	2	0	2	0
Cottle	1	0	1	0
Crosby	1	0	1	0
Dallam	1	0	1	0
Deaf Smith	2	0	2	0
Dickens	2	0	2	0
Gray	128	39,236	14	3
Hansford	1	0	1	0
Hartley	7	0	7	0
Hemphill	1	0	1	0
Hockley	1	0	1	0
Hutchinson	433	97,680	14	32
King	6	0	6	0
Moore	12	464	1	3
Motley	1	0	1	0
Potter	4	0	2	2
Randall	1	0	1	0
Roberts	4	0	4	0
Sherman	2	0	2	0
Swisher	1	0	1	0
Wheeler	56	9,330	8	23
Total 1927	804	178,054	87	94

Completions by Month

Month—	Comp.	Prod.	Dry	Gas
January	101	23,204	5	3
February	74	11,232	7	9
March	80	19,072	6	7
April	110	27,080	7	15
May	90	32,774	4	4
June	77	12,875	6	2
July	75	11,939	7	7
August	47	6,665	13	10
September	41	7,709	8	12
October	46	10,320	12	14
November	31	3,990	7	8
December	32	11,194	6	5
Total 1927	804	178,054	87	94
Total 1926	831	371,789	35	32
Difference	27	193,735	52	62

NORTH CENTRAL TEXAS

The older North and Central Texas divisions suffered a big slump in field work in 1927 as compared with 1926, but

(Continued on Page 174)

GAS PRODUCTION THE FEATURE OF SOUTHWEST TEXAS FIELDS

By B. D. Stevenson
Staff Correspondent, Southwest Texas Fields

Enormous expansion of the natural gas resources of Southwest Texas was one of the outstanding features in 1927, with the consummation the last thing in 1927 of a $35,000,000 merger of the Southern Gas Co and its subsidiaries with offices in San Antonio and reserves of 27,000,000,000 feet of gas open flow daily and the Houston Gulf Gas Co. and kindred interests of Houston with reserves of 20,000,000,000 feet daily.

There were more wells completed in 1927 than in 1926 and more than were completed in 1925 but the summary of completions shows that the flush production of oil dropped far down and gas production increased:

	Comp.	Initial Oil Prod.	Dry Holes	Gas Wells
Total 1927	868	12,762	394	181
Total 1926	681	85,027	147	118
Total 1925	709	121,322	140	55

Developed gas production in 1926 was estimated at 2,900,000,000 cubic feet and the 181 wells completed during 1927 had gauged an estimated volume of 4,037,650,000 cubic feet. This gas development was scattered pretty well over the entire district of Southwest Texas. Volume of gas added in the various fields is as follows:

SOUTHWEST TEXAS
Gas Production by County in 1927

County and Field—	Volume Cu. Ft.
Medina, Adams	338,650,000
Refugio, Refugio	801,000,000
Neuces, Saxet	104,000,000
San Patricio, White Point	450,000,000
Live Oak, Cartwright	230,000,000
Webb, Carolina-Texas	118,000,000
Duval, Cole	1,416,000,000
Webb, Albercas	165,000,000
Jim Hogg, H. W. & F.	195,000,000
Zapata, Jennings	90,000,000
Webb, Cole (new)	100,000,000
Jim Hogg, Alworth	30,000,000
Total	4,037,650,000

One New Oil Field

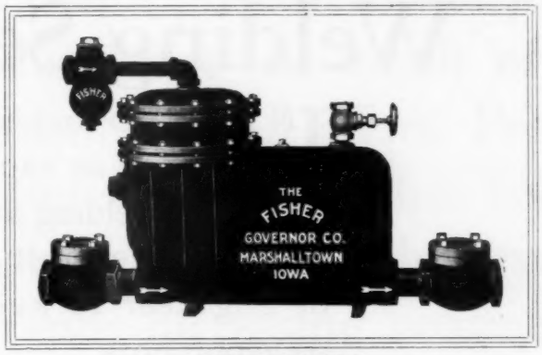
New gas fields were discovered during 1927 but only one small oil field fell to the credit of drillers in unproven territory. Also there were new gas sands discovered and new producing gas spots around old fields. The Cole Petroleum Co., which discovered the Cole Field a couple of years or so ago in Duval County near the Webb County line, picked up a new spot 4 miles to the west in Webb County and also in a new sand. While it had not been developed much by the close of 1927 the gas is there and Killam and the Houston Oil Co. have picked up production south of this and gas area has been considerably extended, though the geology has not as yet been entirely disclosed. In the first Cole Field in Duval gas is produced at around 1,700 feet and in the new spot to the west at around 2,400 feet.

South of the old Jennings Field in Zapata County, which was one of the first commercial fields in Southwest Texas, The Texas Company discovered some more gas and Killam and Magnolia to the northeast of that and between The Texas Company's discovery and the Mirando Valley oil field, picked up another gas area. Depths are comparatively shallow. The Texas Company in its discovery south of the old Jennings Field got not one sand but two. The first in, the No. 7 Jennings in the Cerrito Blanco Survey, 6,950 feet from the southeast line and 10,720 feet to the southwest line, had 20,000,000 feet of gas at 1,416-22 feet and 65,000,000 feet at 1,948-

(Continued on Page 174)

Southwest Texas
Daily Average and Monthly Production in 1927

	January	February	March	April	May	June	July	August	September	October	November	December	Total
LULING—													
Daily average	18,214	18,145	18,285	18,214	16,950	16,343	16,308	16,244	16,341	15,604	15,274	14,819	
Month	564,634	508,060	566,835	546,420	522,350	490,290	505,548	503,564	490,230	483,724	458,220	459,389	6,099,364
MIRANDO—													
Daily average	16,197	15,247	14,462	14,376	13,930	13,350	11,910	11,400	10,900	9,491	9,210	9,014	
Month	502,107	426,916	448,322	431,280	431,830	400,500	369,210	353,400	327,000	294,221	276,300	279,434	4,540,520
SOMERSET—													
Daily average	1,847	1,671	1,494	1,240	1,205	1,207	1,095	1,082	1,814	2,361	2,342	2,291	
Month	57,257	46,788	46,314	37,200	37,355	36,210	33,945	33,542	54,420	73,191	70,260	71,021	597,503
CALLIHAM—													
Daily average	51	42	40	40	30	29	25	24	23	24	24	25	
Month	1,581	1,176	1,240	1,200	930	870	775	744	690	744	720	775	11,445
ROCKDALE-MINERVA—													
Daily average	990	977	974	915	1,026	1,077	1,115	1,063	1,054	555	383	475	
Month	30,690	27,356	30,194	27,450	31,806	32,310	34,565	32,953	31,620	17,205	11,490	14,725	322,364
LOCKHART—													
Daily average	2,884	2,322	2,244	2,307	2,192	2,000	1,990	1,966	1,863	1,747	1,710	1,618	
Month	89,404	65,016	69,564	69,210	67,592	60,000	61,690	60,946	55,890	54,157	51,300	50,158	755,327
MISCELLANEOUS—													
Daily average	.....	.....	165	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Month	.....	.....	5,115	.....	.....	.....	.....	.....	.....	.....	.....	.....	5,115
Daily average	40,183	38,404	37,664	37,092	35,233	34,006	32,443	31,779	31,995	29,782	28,943	28,242	23,752
Total 1927	1,245,673	1,075,312	1,167,584	1,112,760	1,092,223	1,020,180	1,005,733	985,149	959,850	923,242	868,290	875,502	12,331,496
Total 1926	1,233,397	1,100,720	1,220,842	1,176,630	1,208,163	1,162,020	1,303,333	1,425,690	1,371,420	1,368,092	2,284,290	1,278,502	15,132,989
Difference	12,276	25,408	53,258	63,870	115,940	141,840	297,600	440,541	411,570	444,850	416,000	403,000	2,801,491



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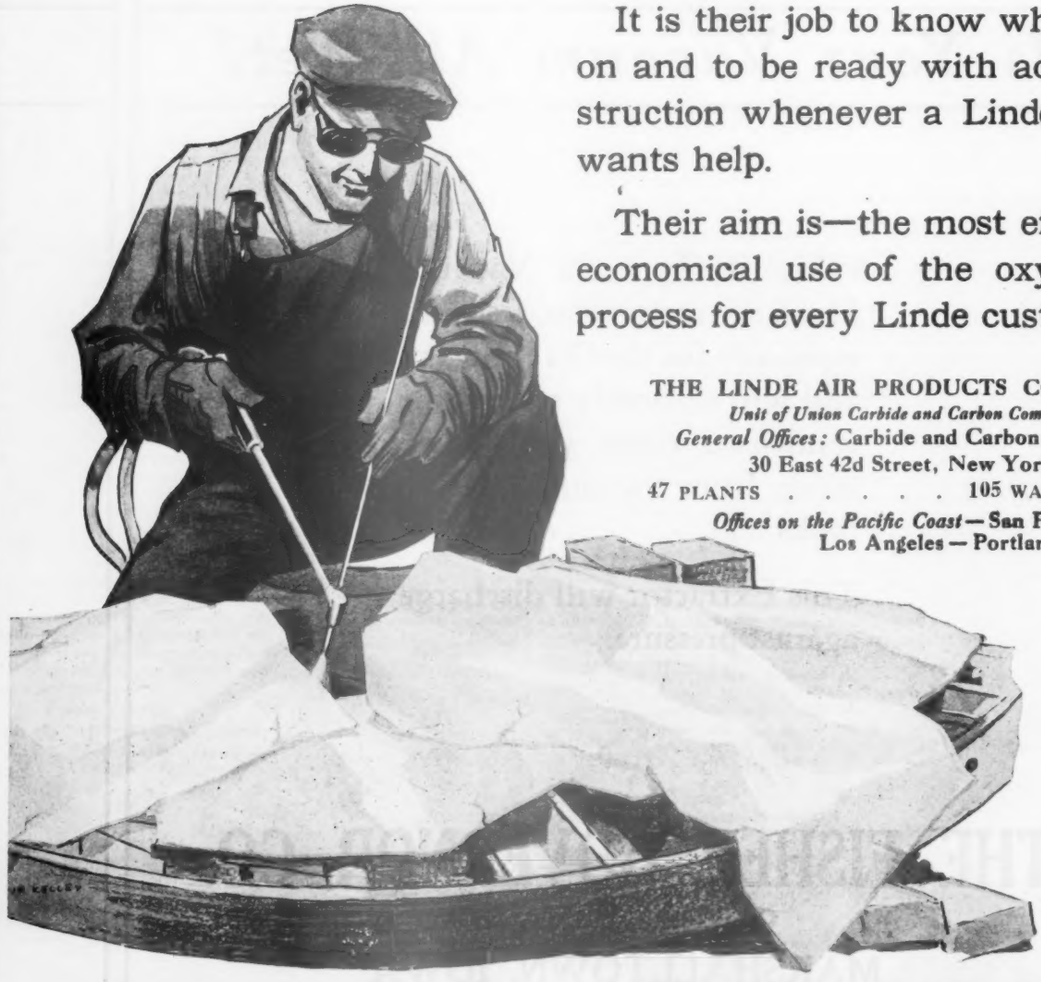

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DISSOLVED ACETYLENE

Four New California Fields in 1927

Two More Opened Already This Year. Production in 1927 Showed an Increase and Much Oil Was Shut In

By L. P. Stockman
Staff Correspondent, California Fields

California has just closed a very eventful year, replete with interesting developments in all phases of the oil industry. Wildcatters were exceptionally successful and this prospecting work resulted in the discovery of four new fields in 1927 and two more shortly after the opening of this year. The production of crude in 1927 was considerably higher than during the previous year and domestic consumption of refined products on the Pacific Coast was about 15 per cent better than during the preceding year, 1926, although the price structure was very unsatisfactory. Crude oil production aggregated 230,751,463 bbls. during the past 12 months, as compared with 224,117,013 bbls. in 1926, and 230,147,342 bbls. in 1925. The past year, 1927, started off with a production of 651,125 bbls. per day during January and wound up with an average daily output of 610,930 bbls. during December. These figures indicate that the production trend during the year was definitely downward and this is further evidenced by the fact that the average daily production during the first six months of the year, 641,904 bbls., was 19,258 bbls. in excess of the average daily production during the last half. It is rather interesting to note in this connection that January, 1927, showed the largest daily average production while December, the concluding month of the year, showed the smallest.

In addition to the actual production of crude oil, 632,196 bbls. per day during the past year, there was an additional 74,042 bbls. shut in so that with everything wide open California could have produced 706,238 bbls. per day if necessity demanded. The total potential in 1926 approximated 669,128 bbls. per day, this being made up of an actual production of 614,019 bbls. and a shut in of 55,109 bb's. California's largest daily production and greatest curtailment occurred in 1923 when the actual yearly output averaged 722,545 bbls. This flood of oil forced operators to shut in an additional 124,288 bbls., raising the potential for that year to 846,833 bbls. per day. In two months of that year, August and September, the potential daily production went over the 1,000,000-bbl. mark and with everything wide open California would have produced 1,007,173 bb's. per day in August and 1,013,020 bbls. in September. The highest potential production in 1924 was 709,592 bbls. per day in February, while the largest possible production in 1925 would have occurred in September when the State would have made 729,862 bbls. per day if there had not been any producing wells shut in.

Long Beach, Midway-Sunset, Huntington Beach, Ventura Avenue, Seal Beach, Santa Fe Springs, Inglewood and Elk Hills were the largest contributors to California's heavy production during the past year. These eight fields accounted for 164,768,912 bbls., or better than 71 per cent of the total yearly production of 230,751,463 bbls. Long Beach, the largest single contributing factor in State production, was unusually stable around 91,000 bbls. per day during the first nine months of 1927 but deep sand exploitation resulted in a very perceptible increase during October, November and December. Huntington Beach, on the other hand, showed a downward tendency during the entire year, the total production of 1,854,019 bbls. in December being more than 1,000,000 bbls. less than the field production in the preceding January, which aggregated 2,859,859 bbls. This substantial decline was due to the fact that the period of flush production resulting from town lot drilling during the latter part of 1926 ceased during the early part of 1927. This drop in production at Huntington was not due to decreased drilling for, as a matter of fact, completions in that field during 1927 were far more numerous than in 1926. The 209 new wells completed at Huntington Beach during the past year, however, were not nearly as prolific as the 126 finished in 1926, as current completions only showed an average initial daily well production of 352 bbls., as compared with 890 bbls. per well in 1926.

Seal Beach Outstanding Field

Seal Beach was the most important single factor in California's excessive production during the past year and while Long Beach, Midway-Sunset, Ventura Avenue and Huntington Beach all produced more oil than Seal Beach in 1927 none of this quartet showed as wide a fluctuation as this sing'e field. Seal Beach wound up the year with a total annual output of 16,424,929 bbls. but this does not tell the story of its rapid rise during the relatively short period of one

CALIFORNIA

FIELD OPERATIONS BY MONTHS FOR YEAR 1927

1927—	Oil wells completed No.	Oil wells completed Bbls. dy.	Wells Drlg.	Wells Prod.	Abandoned Drlg.	Abandoned Prod.	New rigs
January	103	46,370	447	11,405	35	28	131
February	68	29,011	439	11,339	33	22	66
March	79	40,552	493	11,298	27	29	181
April	105	81,432	503	11,323	31	37	128
May	80	52,575	444	11,191	19	13	50
June	96	64,201	396	11,240	26	18	79
July	70	31,480	345	11,279	17	14	78
August	75	42,286	345	11,202	11	21	67
September	51	18,559	339	11,234	17	13	60
October	61	26,101	332	11,242	19	9	87
November	55	27,980	358	11,278	24	25	137
December	58	19,358	401	11,284	12	23	96
Total 1927	901	479,905			281	252	1,160
Total 1926	913	391,620	...	.....	284	200	1,138
Total 1925	948	506,969	...	.....	338	141	1,262
Total 1924	1,238	508,944	...	.....	336	251	1,240
Total 1923	980	1,376,279	...	.....		293	1,327
Total 1922	801	524,397	...	.....		204	1,379
Total 1921	684	187,567	...	.....		162	1,082
Total 1920	587	169,500	...	.....		159	925
Total 1919	558	114,870	...	.....		211	692
Total 1918	597	126,926	...	.....		155	607
Total 1917	749	128,296	...	.....		162	766
Total 1916	619	103,765	...	.....		214	672
Total 1915	333	75,385	...	.....		175	170
Monthly average 1927..	75	39,992	404	11,276	23	21	97
Monthly average 1926..	76	32,635	422	11,288	24	17	95
Monthly average 1925..	79	42,247	417	11,393	28	12	105
Monthly average 1924..	103	42,412	510	10,903	28	21	103
Monthly average 1923..	82	114,690	759	8,928		24	111
Monthly average 1922..	67	43,700	605	9,410		17	115
Monthly average 1921..	57	15,631	536	9,425		14	90
Monthly average 1920..	49	14,125	403	9,299		13	77
Monthly average 1919..	47	9,572	340	8,774		18	58
Monthly average 1918..	50	10,577	362	8,210		13	50
Monthly average 1917..	63	10,690	361	7,398		14	64
Monthly average 1916..	52	8,647	238	6,542		18	56
Monthly average 1915..	28	6,282	163	6,016		15	14

Field Operations by Districts for Year 1927

Districts—	Oil Wells Completed Number	Oil Wells Completed Bbls. Daily	Oil Wells* Drilling	Oil Wells* Producing	Abandoned Drillers	Abandoned Producers	New Rigs
Kern River	121	21,559	14	1,305	9	...	143
Mount Poso	6	2,975	2	2	7	...	7
Round Mountain	1	500	2	.....	1	...	9
McKittrick	13	428	2	312	...	...	19
Midway-Sunset	91	12,354	14	2,940	16	19	69
Elk Hills	1	25	...	235	...	...	1
Lost Hills-Belridge	3	332	2	274	...	...	1
Coalinga	9	563	4	969	3	13	4
Wheeler Ridge	3	269	1	29	...	1	4
Wasonville	...	.....	...	6	...	...	...
Santa Maria	6	1,675	4	216	4	3	8
Summerland	1	25	2	100	...	...	2
Goleta	8	2,615	3	2	3	...	16
Rincon	2	1,875	3	...	...	1	15
Ventura Avenue	40	62,987	26	91	...	1	48
Ventura-Newhall	15	1,854	29	510	26	1	29
Los Angeles-Salt Lake	...	.....	...	347	...	16	...
Whittier	1	60	...	182	4	1	...
Fullerton	15	6,732	9	403	1	...	11
Coyote	6	830	3	210	2	3	9
Santa Fe Springs	4	944	2	332	1	20	3
Montebello	6	1,155	4	182	1	1	9
Richfield	72	19,601	21	233	6	12	62
Hunting on Beach	209	73,586	40	555	10	14	163
Long Beach	48	50,257	29	678	22	115	164
Torrance	12	1,194	2	6555	1	10	10
Dominguez	9	2,854	3	76	3	2	6
Rosecrans	9	3,972	2	122	13	14	4
Inglewood	17	3,760	1	219	2	...	16
Newport	3	25	1	6	2	...	2
Seal Beach	169	204,399	48	84	24	6	221
Potrero	1	500	131	.....	...	...	1
Miscellaneous Drill	...	.....	...	.....	120	...	104
Total	901	479,905	404	11,276	281	252	1,160

CALIFORNIA CRUDE OIL PRODUCTION, JANUARY-DECEMBER, 1927, INCLUSIVE
(Barrels of 42 U. S. gallons.)

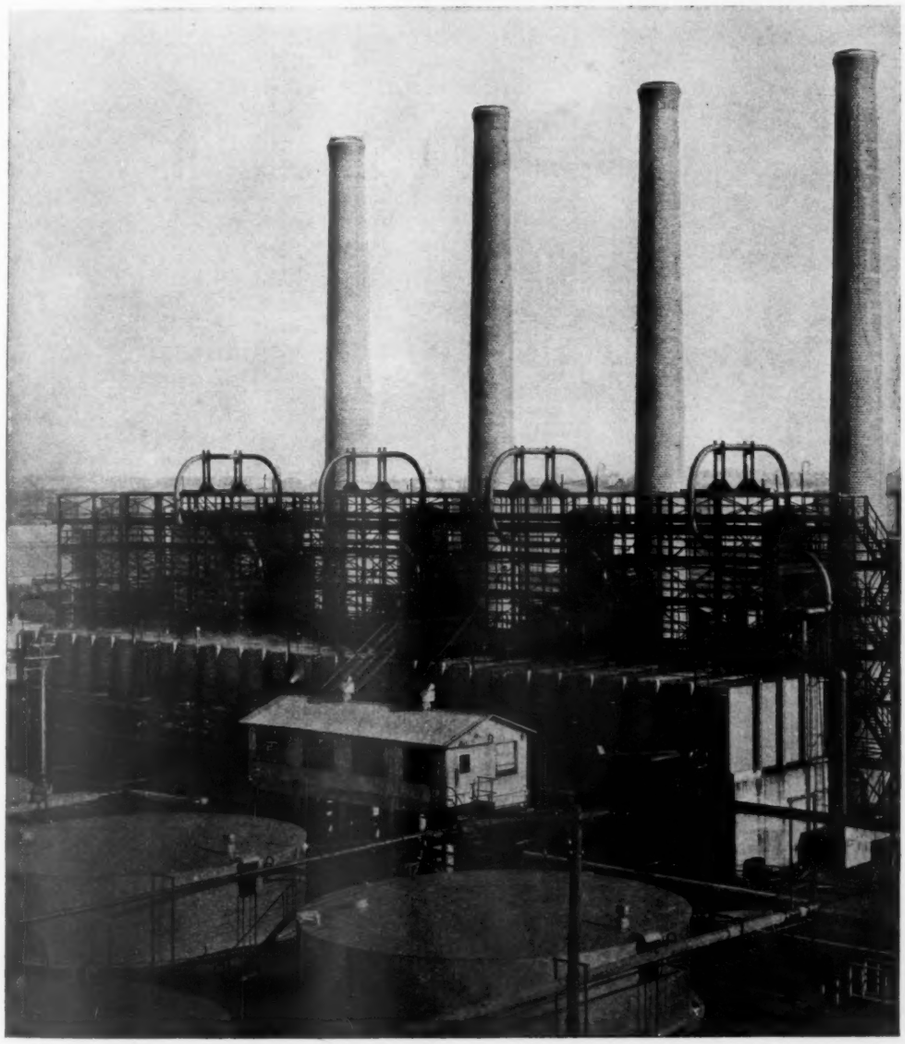
District—	January	February	March	April	May	June	July	August	September	October	November	December	Total	Daily
Kern River	410,327	384,829	406,020	418,502	436,011	469,917	501,470	526,823	539,760	610,022	673,602	721,300	6,098,582	16,708
Mount Poso	6,983	5,807	5,165	3,837	2,329	1,835	1,054	1,173	2,441	2,637	3,566	3,451	40,277	110
Round Mountain	.....	.....	.....	.....	600	5,400	500	.....	.....	700	1,500	.....	8,700	24
McKittrick	163,990	144,100	159,572	157,981	157,529	155,847	155,036	156,930	148,636	152,587	150,513	152,882	1,855,603	5,084
Midway-Sunset	2,804,775	2,508,363	2,747,956	2,766,445	2,795,270	2,689,538	2,674,431	2,634,896	2,541,014	2,560,654	2,441,006	2,507,360	31,670,708	86,769
Elk Hills	1,064,069	958,011	1,037,339	861,597	770,144	750,365	800,071	772,349	779,595	792,771	744,170	742,592	10,073,073	27,597
Lost Hills-Belridge	149,377	131,711	150,937	127,175	118,604	113,918	114,569	121,771	120,446	122,734	115,307	128,751	1,515,300	4,151
Coalinga	616,785	556,294	608,235	620,227	622,112	595,264	609,036	596,101	580,425	592,846	575,466	581,808	7,154,599	19,601
Wheeler Ridge	32,641	29,155	34,671	31,482	31,784	31,167	31,278	31,821	32,918	28,347	28,808	30,662	374,734	1,027
Wasonville	1,733	1,615	1,783	1,728	1,752	1,725	1,592	1,783	1,658	1,782	1,725	1,783	20,871	57
Santa Maria	143,862	138,835	151,587	152,057	154,352	166,894	177,991	181,448	170,625	181,928	197,451	182,021	1,999,051	5,477
Summerland	4,260	3,653	4,095	4,565	4,185	4,215	4,230	4,203	4,212	4,047	3,920	3,890	49,475	136
Goleta	.....	1,320	8,434	5,686	5,019	11,060	10,003	10,438	8,994	10,341	8,390	7,155	86,840	238
Rincon	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1,060	4,863	5,923	16
Ventura Avenue	1,672,863	1,420,663	1,582,258	1,552,439	1,268,003	1,124,917	1,182,519	1,421,202	1,725,341	1,712,226	1,571,515	1,584,758	17,808,704	48,791
Ventura-Newhall	170,701	169,466	186,107	187,252	188,833	179,787	189,446	184,423	182,150	193,295	183,241	184,436	2,197,644	6,021
Los Angeles-Salt Lake	53,827	51,292	54,935	54,449	54,078	53,483	53,527	54,336	50,170	50,113	50,873	50,008	630,600	1,728
Whittier	60,992	50,568	59,783	55,894	63,436	53,246	53,452	51,028	52,162	54,174	52,147	53,623	660,505	1,810
Fullerton (Brea-Olinda)	781,596	687,850	752,615	677,683	491,396	507,081	553,484	568,913	517,975	525,239	481,073	464,029	7,008,934	19,203
Coyote	475,109	415,475	439,132	435,557	442,606	412,259	419,355	409,930	421,776	435,568	410,140	429,957	5,146,864	14,101
Santa Fe Springs	1,385,438	1,242,663	1,343,482	1,299,386	1,330,515	1,260,192	1,280,689	1,233,123	1,198,207	1,213,434	1,163,440	1,203,009	15,153,578	41,517
Montebello	542,255	464,512	506,456	483,650	476,221	455,786	448,085	437,664	436,367	439,628	406,265	401,363	5,498,252	15,064
Richfield	630,989	592,107	637,333	643,656	656,686	659,653	705,746	687,211	663,181	664,416	672,556	670,508	7,884,042	21,600
Huntington Beach	2,859,859	2,348,505	2,407,779	2,304,611	2,384,783	2,194,400	2,156,402	2,124,985	1,940,005	1,940,849	1,828,500	1,854,019	26,344,697	72,177
Long Beach	2,869,492	2,607,046	2,933,300	2,801,022	2,854,887	2,803,829	2,867,493	2,820,743	2,704,970	2,906,537	3,012,029	3,360,319	34,541,667	94,635
Torrance	799,286	702,369	752,150	727,090	738,577	700,283	706,454	683,401	641,675	641,671	614,780	631,202	8,338,938	22,846
Dominguez	572,291	519,610	565,911	514,956	508,025	477,430	494,472	470,583	456,531	463,736	422,119	421,981	5,887,645	16,130
Rosecrans	371,085	329,345	336,596	349,662	315,819	280,510	372,067	263,590	238,588	241,125	243,592	264,137	3,506,116	9,606
Inglewood	1,226,347	1,071,948	1,154,476	1,114,072	1,110,955	1,031,140	1,063,408	1,041,797	989,608	1,012,039	957,307	978,560	12,751,656	34,936
Newport	1,005	1,347	1,246	1,471	1,164	817	638	552	1,280	1,280	.....	.....	12,485	34
Seal Beach	312,905	444,257	806,372	1,140,542	1,530,543	1,990,137	1,790,667	1,785,831	1,914,518	1,891,591	1,499,635	1,317,931	16,424,929	45,000
Potrero	.....	.....	.....	.....	.....	.....	.....	.....	.....	571	.....	.....	571	1
Total	20,184,872	17,982,711	19,835,724	19,493,825	19,506,054	19,181,443	19,319,021	19,279,131	19,064,500	19,448,893	18,516,467	18,938,823	230,751,463	632,196
Daily average 1927	651,125	642,240	639,862	649,794	629,228	639,381	623,194	621,907	635,483	627,384	617,216	610,930		632,196
Daily average 1926	616,147	612,999	607,283	603,059	602,166	608,981	604,619	605,325	603,498	611,808	639,104	654,095		614,019
Daily average 1925	604,622	602,494	600,839	598,655	607,107	642,938	658,421	677,599	668,759	645,648	636,530	620,958		630,541
Daily average 1924	674,597	666,939	642,363	643,328	639,793	626,933	621,766	616,548	610,274	603,115	592,234	606,294		628,588
Daily average 1923	539,885	586,670	632,522	689,865	694,689	755,570	814,906	852,903	858,750	792,787	746,596	706,427		722,545
Daily average 1922	313,472	323,585	330,663	339,536	359,554	357,731	374,138	382,221	406,838	432,885	467,851	497,639		382,639
Daily average 1921	325,401	328,104	338,544	338,992	336,941	337,045	329,844	343,227	261,980	227,865	293,616	325,631		313,883

BADGER DOUBLE COLUMN CONTINUOUS FRACTIONATING SYSTEM

THE Badger Double Column System for Continuous Fractionation makes possible maximum yields of controlled products at a minimum fuel consumption.

We have sold twenty-eight of these units since we developed this particular system two years ago. These units have a rated daily throughput capacity of approximately 200,000 barrels.

Many of the orders for these units are repeat orders.



The following Companies are some of those who have purchased BADGER Equipment:

Magnolia Petroleum Co., of Texas
Roxana Petroleum Corp.
Craig Oil Co.
Freedom Oil Works Co.
White Star Refining Co.
Gulf Refining Co.
Skelly Oil Co.
Phillips Petroleum Co.
Pierce Petroleum Corp.
Tide Water Oil Co.
Anglo-Persian Oil Co., Ltd.
Empire Refineries, Inc.
Marland Oil Co.
Vacuum Oil Co.
Associated Oil Co.
Barnsdall Corp.
Humble Oil & Refining Co.
Tidal Refining Co.
Standard Oil Co., of N. J.
General Petroleum Corp.
Beacon Oil Company
Lubrite Refining Co.
Pennzoil Company
Shell Company of California

E. B. BADGER & SONS COMPANY

New York • Kansas City • Tulsa • Los Angeles • Ann Arbor • Boston

year. A month by month check indicates that this field started off with a total production of 312,905 bbls. in January, 1927, and closed the year with 1,317,931 bbls. in December, a difference of over 1,000,000 bbls. Intensive town lot drilling at Alamitos Heights was responsible for the rapid development of production at Seal Beach, the completion of new wells causing field output to jump from a total of 312,905 bbls. in January to 1,140,542 bbls. in April and then to 1,990,137 bbls. during June. Flush production in the top zone fell off in July resulting in a rather substantial decline in total production but a second horizon was subsequently developed and field production again went up, reaching 1,914,518 bbls. during September. The flush condition of the second zone ceased in October and production dropped to 1,499,635 bbls. in November and 1,317,931 bbls. in December. A third horizon has recently been picked up and present indications point to another high early in 1928, although it will probably not approximate the large production chalked up in June or September, 1927.

Big Fields Held Back

Midway-Sunset and Elk Hills both showed a declining production in 1927 due to mutual artificial curtailment by several companies and a smaller amount of new drilling. The Ventura Avenue Field showed a violent fluctuation during the middle of the year, production dropping off over 400,000 bbls. in June and July. This was due to curtailment measures initiated by the Associated, General Petroleum, Shell and Bolsa Chica companies, these concerns mutually agreeing to shut in a number of producing wells on May 1 in order to reduce State production as much as possible. This action came simultaneously with the development of substantial production in the Alamitos Heights town lot section of the Seal Beach Field due to intensive drilling and while the rapidly mounting production in the latter area was directly responsible for the shutting in of production at Ventura Avenue the desire to prevent waste through excessive production was also a contributing factor. The wells shut in on May 1 at Ventura Avenue were opened up on September 1 with the result that production again became normal after that time, although operators in this field subsequently beaned down several wells in October in an effort to reduce the production of natural gas. The Fullerton, or Brea Olinda Field, produced a total of 7,008,934 bbls. of crude during 1927 but this would have been considerably higher if operators had not shut in approximately 7,500 bb'ls. of daily production simultaneously with the inauguration of similar measures at Ventura Avenue on May 1. The restriction in the former field continued in force during the entire year and the wells shut in are still on the suspended list in contrast to those in the latter district which were again opened up on September 1.

The old Kern River Field produced 6,098,582 bbls. of crude in 1927 notwithstanding the fact that approximately 7,500 bbls. of daily production in the older section of the field was curtailed during the entire year. This district started off with a total of 410,327 bbls. during January and ended the year with an output of 721,300 bbls. in December, an increase of over 75 per cent. The increase in production of this field was consistent during the entire year, each month being larger than the preceding one. The gain recorded was due exclusively to drilling operations out along the West Front where shallow commercial production has been developed. The Rosecrans and Dominguez Fields in southern California both showed a decline in production during 1927, due to normal settling in older producing wells and decreased drilling by the various companies operating in these fields. Santa Fe Springs was relatively stable during the entire year, the daily production running around 45,000 bbls. in January and a little less than 40,000 bbls. in December.

Santa Fe Springs, opened up by the Union Oil Co. after a long seven-year search, was by far the most sensational field ever discovered in the State but it has failed to show anything like sustained production. This district produced 79,781,275 bbls. of crude during 1923, the largest annual production ever shown by any California field. The Huntington Beach Field, discovered by the Standard during the latter part of 1920, registered its maximum yearly production almost simultaneously with Santa Fe Springs in 1923, the output during this 12-month period being 34,355,642 bbls. Production fell off the following year to 17,533,520 bbls. and declined to 15,887,474 bbls. in 1925. Under normal conditions the output in 1926 would have been still lower but the development of a town lot area out along the ocean front resulted in considerable intensive drilling and production again resumed its upward trend. Drilling operations in the town lot section proved quite productive during the following two years and this field yielded 19,064,814 bbls. in 1926 and 26,344,697 bbls. in 1927 bringing the total recovery to date to 126,912,458 bbls. Torrance, Dominguez, Rosecrans, and Inglewood all showed a smaller production in 1927 due to decreased drilling and the normal settling in older wells.

Four New Fields in 1927

Four new fields, Round Mountain, Goleta, Rincon and Potrero, showed their initial production during 1927 and while they only showed an aggregate production of 102,034 bbls. during the past year they can be expected to produce a much larger quantity in the future. The Mount Poso Field, located about 15 miles north of Bakersfield in Kern County, produced a total of 40,277 bbls. during the past 12 months, the heavy oil found in that district resulting in a practical cessation of drilling operations. The Elbe Oil Co. opened up the Round Mountain Field during the latter part of 1927 and this district, located about 15 miles northeast of Bakersfield and about a similar distance southeast of Mount Poso, was also kept under restraint due to the undesirability of heavy oil and lack of pipe line facilities.

The General Petroleum Corp. has just

(Continued on Page 170)

TOTAL INTERCOASTAL SHIPMENTS (BULK) OF CALIFORNIA OIL TO ATLANTIC AND GULF COAST PORTS
(In barrels of 42 U. S. gallons.)

1926—	Crude Oil	Fuel Oil	Diesel and Gas Oil	Naphtha Tops	Motor Gasoline	Kerosene	Lubricating Oil	Total
January	1,257,681	676,693	296,585	71,178	828,696	.....	52,025	3,182,858
February	868,939	649,899	367,182	.....	424,964	.....	.....	2,310,984
March	1,224,705	586,262	309,535	73,698	669,155	.....	52,063	2,915,413
April	1,103,322	467,061	437,843	.....	735,157	.....	.....	2,743,383
May	1,378,510	423,580	584,489	.....	831,566	.....	53,059	3,271,204
June	966,094	425,359	363,604	.....	462,548	.....	.....	2,217,605
Total first half	6,799,251	3,228,854	2,359,238	144,876	3,952,086	.....	157,147	16,641,452
July	1,152,692	530,147	566,781	.....	901,109	.....	58,470	3,209,199
August	723,663	1,191,249	619,972	.....	859,586	.....	.....	3,394,470
September	725,450	501,865	547,119	152,441	481,589	.....	134,393	2,542,867
October	821,159	978,587	380,054	.....	686,659	.....	87,860	2,954,319
November	398,085	546,649	654,467	72,157	604,682	.....	.....	2,276,040
December	428,218	711,902	392,976	.....	961,755	.....	.....	2,494,851
Total last half	4,249,267	4,461,399	3,161,369	224,598	4,495,380	.....	250,723	16,842,736
Total year	11,048,518	7,690,253	5,520,607	369,474	8,447,466	.....	407,870	33,484,188
1927—								
January	392,298	1,078,303	586,218	.....	746,760	.....	58,110	2,861,689
February	860,729	919,571	304,053	.....	1,108,558	.....	.....	3,192,911
March	582,941	927,125	490,236	.....	602,202	.....	53,860	2,656,364
April	470,357	618,304	451,474	.....	767,642	.....	.....	2,307,777
May	1,269,825	564,555	79,199	.....	1,079,681	.....	.....	2,993,260
June	1,097,007	331,592	307,770	.....	960,390	.....	132,866	2,829,615
Total first half	4,673,157	4,439,450	2,218,950	.....	5,265,233	.....	244,826	16,841,616
July	1,201,637	334,472	314,453	.....	1,011,255	.....	.....	2,861,817
August	1,324,873	517,101	230,951	.....	1,326,310	.....	69,172	3,468,407
September	832,425	967,761	469,945	.....	1,040,491	.....	.....	3,309,632
October	819,500	360,245	149,345	.....	979,424	.....	67,164	2,375,878
November	876,378	72,154	461,623	.....	933,099	92,427	69,177	2,504,858
December	818,265	79,544	314,854	.....	926,255	238,545	.....	2,377,463
Total last half	5,873,078	2,321,277	1,941,171	.....	6,216,834	330,972	205,513	16,888,055
Total year	10,546,235	6,760,727	4,160,121	.....	11,482,067	330,972	450,339	33,730,461

TOTAL EXPORT TANKER SHIPMENTS (BULK) OF CALIFORNIA OIL TO PACIFIC AND ATLANTIC FOREIGN PORTS
(In barrels of 42 U. S. gallons.)

1926	Crude Oil	Fuel Oil	Diesel and Gas Oil	Naphtha Tops	Motor Gasoline	Kerosene	Benzine	Lubricat'g Oil	Total
January	109,037	1,916,382	64,882	.....	432,258	236,991	.....	9,093	2,768,643
February	267,249	1,820,742	69,911	.....	568,688	516,142	.....	.....	3,242,732
March	109,660	1,575,578	28,087	.....	463,613	159,177	.....	.....	2,336,115
April	420,040	1,981,827	23,257	.....	919,477	543,746	.....	8,958	3,897,305
May	709,177	1,720,276	21,935	.....	819,133	270,384	.....	.....	3,540,905
June	326,471	1,926,742	59,301	.....	484,560	525,151	.....	.....	3,322,225
Total first half	1,941,634	10,941,547	267,373	.....	3,687,729	2,251,591	.....	18,051	19,107,925
July	599,878	1,850,517	118,677	.....	502,621	396,323	.....	.....	3,468,016
August	285,060	2,453,730	13,369	.....	628,355	630,422	60,452	8,759	4,080,147
September	560,941	1,483,555	96,125	166,967	507,600	361,467	.....	.....	3,176,655
October	109,486	2,103,050	168,644	71,052	591,028	751,464	.....	39,896	3,834,620
November	290,899	1,828,686	82,972	53,175	538,861	7,719	117,900	.....	2,920,212
December	348,686	1,645,119	63,955	96,270	461,681	321,955	.....	.....	2,937,806
Total last half	2,194,950	11,364,657	543,742	387,464	3,230,146	2,469,350	178,352	48,655	20,417,316
Total year	4,136,584	22,306,204	811,115	387,464	6,917,875	4,720,941	178,352	66,706	39,525,241
1927—									
January	299,966	2,089,737	71,751	75,089	363,974	293,224	.....	9,120	3,202,861
February	442,105	2,665,186	49,122	.....	613,516	238,240	.....	.....	4,008,169
March	106,509	2,339,018	152,317	72,371	821,454	409,798	.....	.....	3,901,467
April	477,263	2,664,133	170,616	154,833	649,911	479,764	.....	.....	4,596,520
May	56,496	2,485,985	184,434	.....	1,362,264	91,673	.....	39,420	4,220,272
June	236,433	2,946,398	165,499	.....	464,343	236,841	.....	.....	4,049,514
Total first half	1,618,772	15,190,457	793,739	302,293	4,275,462	1,749,540	.....	48,540	23,978,803
July	63,339	2,783,423	146,361	.....	793,338	202,836	.....	4,750	3,994,547
August	85,354	2,621,568	108,760	.....	601,812	196,345	59,840	31,373	3,705,052
September	212,969	2,238,977	164,243	.....	893,917	90,510	.....	.....	3,600,616
October	181,850	3,071,506	195,548	.....	927,467	401,310	.....	5,004	4,782,685
November	88,994	2,651,660	234,722	75,099	849,995	335,196	.....	34,387	4,270,053
December	277,091	2,498,978	148,070	.....	1,167,862	239,660	.....	30,224	4,361,885
Total last half	910,097	15,866,112	997,704	75,099	5,234,391	1,465,857	59,840	105,738	24,714,838
Total year	2,528,869	31,056,569	1,791,443	377,392	9,509,853	3,215,397	59,840	154,278	48,693,641

TOTAL FLUID STOCKS HELD ON THE PACIFIC COAST
(Barrels)

	Heavy crude and fuel	Refinable crude	Gasoline	Naphtha distillates	All other stocks	Total all stocks
1924—						
Dec. 31	58,126,999	40,557,414	10,957,487	9,396,613	6,838,490	125,877,003
1925—						
Jan. 31	58,374,519	42,262,361	11,748,056	8,652,085	7,486,313	128,523,334
Feb. 28	59,286,146	42,629,850	12,058,682	7,888,410	8,042,788	129,905,876
March 31	60,214,124	43,501,830	11,833,460	7,356,018	8,701,656	131,607,088
April 30	62,339,602	44,334,413	11,675,831	6,769,291	9,066,725	134,185,862
May 31	64,820,145	45,149,666	11,363,943	6,435,416	9,308,112	137,077,282
June 30	67,785,073	44,577,871	10,406,430	6,293,472	9,370,537	138,433,383
July 31	71,498,732	44,198,326	9,751,143	6,188,559	9,862,659	141,499,419
Aug. 31	*78,802,289	41,216,021	9,687,158	6,418,152	9,356,293	145,479,913
Sept. 30	81,969,283	42,487,578	9,668,725	6,681,547	9,408,267	150,215,400
Oct. 31	83,655,136	43,381,862	9,935,079	6,478,634	9,918,761	153,369,472
Nov. 30	84,814,278	43,930,517	10,015,112	6,373,852	9,764,934	154,898,693
Dec. 31	85,719,383	44,196,138	10,172,562	6,548,483	9,879,743	156,516,309
1926—						
Jan. 31	86,580,630	43,802,077	10,252,936	6,702,299	10,256,439	157,594,381
Feb. 28	86,715,041	44,463,968	10,670,895	6,666,518	10,333,735	158,850,157
March 31	88,437,660	43,564,186	11,116,928	6,339,453	10,161,739	159,619,966
April 30	†86,291,516	38,393,564	11,271,718	5,641,183	10,213,034	151,811,015
May 31	88,475,401	37,044,292	10,804,022	5,184,540	10,225,234	151,733,489
June 30	89,074,507	35,340,238	10,766,007	5,213,043	10,120,565	150,514,360
July 31	88,362,629	33,548,115	10,450,418	4,955,313	10,685,297	148,001,772
Aug. 31	88,452,937	32,152,958	10,421,903	4,755,297	10,471,989	146,255,084
Sept. 30	88,572,233	30,308,093	10,545,392	4,281,018	10,919,993	144,626,729
Oct. 31	88,588,410	30,323,321	10,614,973	4,120,222	11,340,321	144,986,847
Nov. 30	88,606,574	30,224,135	11,209,705	3,841,424	11,022,036	144,903,874
Dec. 31	88,707,499	30,835,057	11,673,563	3,832,042	10,564,015	145,612,176
1927—						
Jan. 31	89,390,079	31,176,493	13,369,861	3,983,435	10,407,139	148,327,007
Feb. 28	89,107,872	29,913,353	13,889,204	3,903,222	10,479,202	147,292,853
March 31	89,015,608	29,500,917	14,521,422	3,991,351	10,003,875	147,033,173
April 30	89,666,735	29,418,335	14,565,364	3,741,718	9,907,191	147,299,343
May 31	91,695,285	27,365,926	13,602,175	3,659,951	9,924,425	146,247,762
June 30	91,878,359	27,175,071	13,496,541	3,517,028	9,716,156	145,783,205
July 31	93,073,707	25,639,883	12,846,249	3,413,614	9,786,052	144,759,505
Aug. 31	93,201,679	23,931,170	12,386,669	3,104,755	9,226,965	141,851,238
Sept. 30	93,390,070	23,025,124	12,329,195	2,672,994	9,561,792	140,979,175
Oct. 31	93,593,275	21,841,747	12,684,662	2,351,849	9,574,715	140,046,248
Nov. 30	93,807,893	21,371,274	12,812,580	2,039,755	9,659,921	139,691,923
Dec. 31	93,013,061	20,268,569	12,725,841	1,901,279	9,486,317	137,395,067

*1,179,865 bbls. previously reported as refinable crude were transferred in August to heavy crude and fuel stocks.

†Includes 800,000 bbls. heavy crude not previously reported. This represents the working stock of a pipe line company and has been a constant figure in the past.

Note—8,214,864 bbls. of crude oil, fuel oil, tops and gasoline were destroyed by lightning fires at Kern River, San Luis Obispo and Brea during April, 1926. Segregation of various commodities destroyed not available. The figures shown above cover actual physical stocks on hand at the end of each month.

(California Production on Page 138)

Parkersburg

HAS SERVED THE OIL FIELDS OF THE WORLD FOR THIRTY ONE YEARS

Flow Tanks

SPECIALLY built and designed to meet the most exacting requirements, Parkersburg Flow Tanks have demonstrated their strength and ability to withstand the excessive vibrations present in handling extremely large volumes of gas and oil under heavy pressure.

For the release of excess vapors, equipment is furnished in accordance with the operator's special requirements.

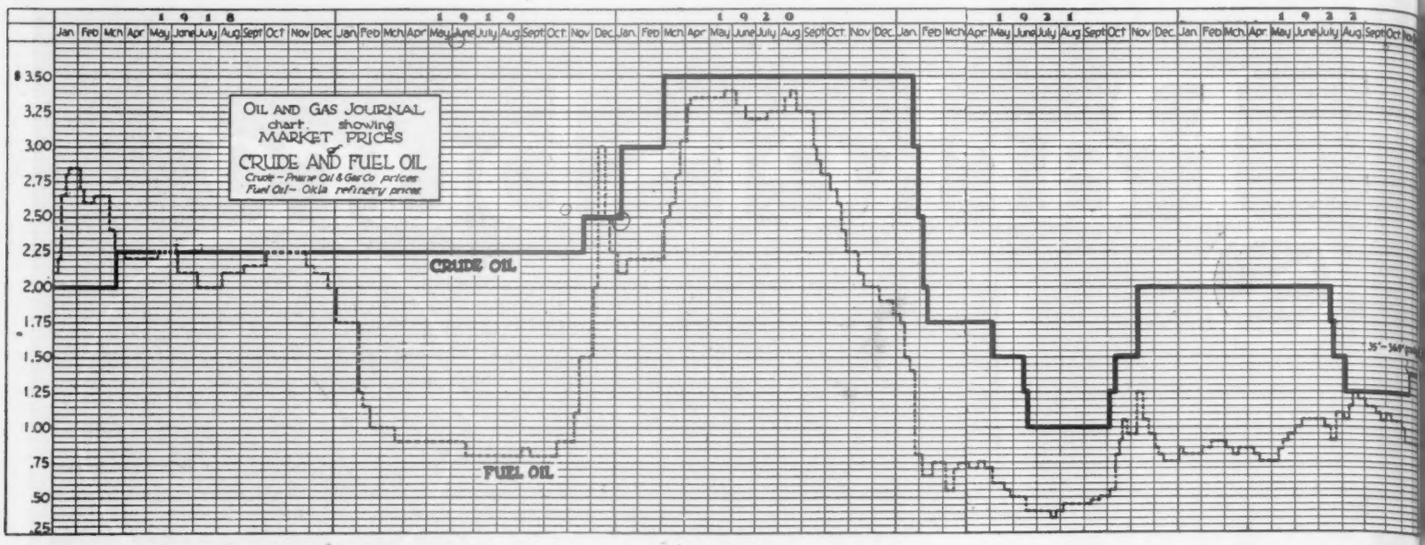
A most satisfactory solution to the vent problem is found in the Parkersburg Flow Tank Stack through the use of pressure valves of the "butterfly" type.

The Stack is 18 inches in diameter, 7 feet long, and is completely equipped with guy wire and lugs for connection to tank deck.

For complete and detailed information on Parkersburg Flow Tanks, Bolted Steel Tanks and Vapor Tight Equipment, send for Section "S," Catalog 26.

Parkersburg Products

The
PARKERSBURG
RIG & REEL COMPANY



Date	Price Crude	Price Fuel Oil
1918		
January 1	$ 2.00	$2.10
January 5	....	2.20
January 10	....	2.65
January 15	....	2.80
January 20	....	2.81
February 4	....	2.70
February 10	....	2.60
February 25	....	2.65
March 12	....	2.40
March 17	....	2.25
March 19	2.25	....
April 2	....	2.20
May 14	....	2.25
June 8	....	2.10
July 4	....	2.00
August 5	....	2.10
September 4	....	2.15
October 3	....	2.25
November 25	....	2.15
December 5	....	2.10
December 20	....	2.00
1919—		
January 2	....	1.75
February 3	....	1.25
February 9	....	1.15
February 20	....	1.00
March 21	....	.90
June 21	....	.80
September 2	....	.85
September 12	....	.80
October 17	....	.90
November 8	....	1.10
November 15	....	1.50
November 20	2.50	....
December 2	....	2.00
December 8	....	3.00
December 16	....	2.50
December 21	....	2.35
1920—		
January 2	....	2.10
January 6	3.00	....
January 16	....	2.20
March 1	3.50	....
March 3	....	2.50
March 12	....	2.60
March 18	....	2.80
March 26	....	3.05
April 3	....	3.30
April 6	....	3.35
May 25	....	3.40
June 7	....	3.30
June 20	....	3.20
July 14	....	3.25
August 6	....	3.35
August 14	....	3.40
August 27	....	3.25
September 13	....	3.00
September 16	....	2.90
September 27	....	2.80
October 8	....	2.70
October 15	....	2.60
October 18	....	2.40
October 28	....	2.25
November 12	....	2.10
November 18	....	2.00
December 10	....	1.90
December 29	....	1.80
1921—		
January 6	....	1.75
January 12	....	1.50
January 20	....	1.40
January 26	3.00	....
January 28	....	.80
January 31	2.50	....
February 4	2.00	.65
February 9	1.75	....
February 19	....	.75
March 4	....	.65
March 14	....	.70
March 21	....	.75
April 3	....	.70
April 16	....	.75
April 20	....	.70
May 2	1.50	....
May 3	....	.60
May 21	....	.55
May 28	....	.50
June 13	1.25	....
June 16	1.00	.40
June 20	....	.35
July 26	....	.40
August 6	....	.45
September 10	....	.47½
September 21	....	.50
October 1	1.25	....
October 6	....	.55
October 7	1.50	....
October 10	....	.80
October 15	....	.90
October 19	....	1.05
October 24	....	.95
November 7	2.00	....
November 8	....	1.25
November 16	....	1.05
November 20	....	.95
December 1	....	.85
December 5	....	.80
December 12	....	.75
1922—		
January 1	....	.85
January 5	....	.80
February 1	....	.85
February 14	....	.90
March 2	....	.85
March 10	....	.80
March 16	....	.85
April 9	....	.80
April 15	....	.70
May 9	....	.85
May 15	....	.90
May 20	....	.95
June 1	....	1.00
June 9	....	1.05
July 8	....	1.00
July 15	1.75	.90
July 18	....	1.50
July 22	....	1.10
August 2	1.25	1.05
August 7	....	1.15
August 14	....	1.25
August 25	....	1.20
September 1	....	1.15
September 15	....	1.10
September 24	....	1.05
October 1	....	1.10
October 10	....	1.05
November 1	....	1.00
November 8	....	.90
November 22 (35°-36.9)	1.40	....
1923—		
January 5	....	.95
January 13	1.50	....
January 17	1.60	1.00
January 27	1.70	....
February 2	1.80	....
February 10	1.90	....
February 15	....	1.05
February 17	2.00	....
April 8	....	1.10
April 14	....	1.15
April 23	1.80	....
May 2	1.88	....
May 5	1.70	1.05
May 12	1.60	....
June 2	....	1.00
June 19	....	.90
June 24	....	.90
July 15	....	.85
July 21	....	.90
July 26	....	.92½
August 1	....	.90
August 6	....	.92½
August 12	....	.95
August 27	....	.90
September 9	....	.90
September 19 (33°-39.9)	1.30	....
October 5	....	.77½
November 8	1.00	....
November 10	....	.75
December 1	....	.70

CALIFORNIA'S PETROLEUM PRODUCTION FROM THE BEGINNING OF T

Year	Kern River	McKittrick	Sunset	Midway	Elk Hills	Lost Hills-Belridge	Coalinga	Wheeler Ridge	Santa Maria	Summerland	Ventura Avenue	Ven.ura-Newhall	Los Angeles-Salt Lake	Whittier	Fullerton
Prior												175,000			
1876												12,000			
1877												13,000			
1878												15,227			
1879												19,858			
1880												40,552			
1881												99,862			
1882												128,636			
1883												142,857			
1884												262,000			
1885												325,000			
1886												377,145			
1887												678,572			
1888												690,333			
1889												303,220			
1890												307,360			
1891												323,600			
1892												385,049			
1893												470,179			
1894										1,800		570,469	196,094		
1895										16,904		474,624	749,695		
1896							14,119			39,792		298,866	902,868		
1897							74,140			130,136		631,135	1,001,158		12,000
1898		10,000					154,000			132,217		763,871	1,126,000		60,000
1899		15,000					439,372			208,370		743,998	1,052,036		217,599
1900	826,775	80,000	12,500				547,960			183,486		628,734	1,280,000		511,550
1901	3,278,840	430,460	188,600	4,235			525,433			203,616		495,943	1,830,000		753,198
1902	8,988,046	619,296	167,558	3,048			571,233		94,188	136,252		646,496	2,027,000		1,103,793
1903	16,342,099	1,353,206	352,565	27,305			2,138,068		204,890	131,125		682,185	793,765		2,305,613
1904	17,226,240	1,856,225	390,425	910			5,097,853		700,450	120,806		650,779	1,241,304		2,224,550
1905	15,253,845	1,373,030	419,212	18,530			8,882,125		3,402,800	96,871		476,898	2,226,768		2,118,312
1906	12,825,166	680,756	307,550	11,800			8,401,105		4,799,411	72,810		404,379	2,675,650		2,434,512
1907	12,346,014	2,415,840	704,805	149,944			8,996,268		8,249,236	69,060		435,584	3,372,465		3,294,206
1908	13,803,579	3,076,300	1,463,510	434,578			10,725,795		8,699,350	67,862		498,015	5,138,959		4,273,314
1909	14,508,242	5,807,360	1,999,701	2,234,455			15,406,619		8,017,455	66,338		516,628	4,350,898		5,157,252
1910	14,776,435	5,471,613	9,218,904	11,174,207		4,900	18,646,570		7,607,830	74,725		652,575	3,729,618		6,281,221
1911	14,078,890	5,477,532	5,559,069	21,584,602		168,410	18,311,251		7,465,074	71,256		661,785	3,223,661		7,081,165
1912	12,446,445	5,094,465	5,590,824	25,948,980		2,680,961	19,546,122		6,801,966	65,715		859,885	3,073,427	747,480	5,813,037
1913	9,980,940	4,496,842	5,984,651	33,040,129		5,274,553	18,604,626		5,817,711	62,406		1,022,052	2,898,846	690,133	6,189,561
1914	7,030,545	3,820,857	12,546,615	37,479,228		4,830,921	15,925,887		4,303,080	55,743		968,421	2,504,475	636,780	6,495,100
1915	8,094,673	3,585,899	6,006,607	33,614,396		4,310,476	13,567,380		4,466,200	55,800		1,028,106	2,094,194	758,163	5,505,999
1916	8,539,973	3,847,166	6,768,658	32,404,213		4,813,501	14,393,437		4,342,605	53,500	2,650	1,083,635	1,729,761	1,014,667	4,806,104
1917	8,593,034	3,275,529	7,072,333	30,022,102		6,369,421	15,898,912		5,956,057	54,000	7,100	1,129,817	1,453,161	1,156,752	4,281,875
1918	8,060,256	3,060,572	6,608,940	28,222,640		5,462,857	16,360,226		7,180,174	54,000	23,609	1,373,213	1,347,471	1,046,467	4,381,751
1919	7,630,937	2,837,324	5,589,885	26,668,768	281,019	4,661,011	16,408,829		6,055,448	54,000	28,435	1,734,762	1,323,021	1,001,060	4,349,376
1920	7,457,810	2,600,763	5,422,781	25,232,815	7,275,809	4,158,559	15,697,035		5,782,426	54,000	105,185	1,944,630	1,320,573	842,134	5,237,044
1921	6,700,420	2,070,369	4,613,965	24,159,423	18,085,425	3,260,931	12,522,157		5,465,262	54,000	127,674	1,975,473	1,314,213	735,376	5,962,008
1922	7,317,288	2,417,434	5,542,816	24,152,026	11,891,030	2,814,824	9,159,368		3,797,903	48,339	685,247	2,330,630	1,258,287	717,729	4,512,974
1923	6,816,134	2,191,702	5,235,889	22,567,392	8,174,371	1,843,483	5,210,839	128,674	3,003,672	52,882	1,423,187	2,279,217	1,192,036	645,210	4,064,661
1924	6,773,321	2,094,598	6,136,213	21,328,676	13,589,611	1,526,371	10,144,428	342,357	2,857,495	53,201	1,831,903	2,188,266	907,453	761,211	4,120,789
1925	5,901,877	2,091,971	6,209,736	20,713,666	11,971,149	1,730,140	7,761,107	344,760	2,596,581	48,351	6,999,403	2,264,069	731,912	746,135	4,481,443
1926	4,358,396	1,961,028	6,444,711	17,524,044	12,392,754	1,693,656	7,296,807	371,981	1,852,356	46,865	14,795,495	2,204,581	675,950	660,606	6,987,489
1927	6,098,582	1,855,603	6,122,953	25,547,755	10,073,073	1,515,300	7,154,599	374,734	1,999,051	49,475	17,808,704	2,197,644	630,600	660,606	7,006,934
Grand total	266,054,802	75,468,730	122,682,976	494,209,807	93,634,341	57,170,285	304,568,659	1,562,506	121,518,671	2,685,382	43,848,592	41,586,615	61,436,319	12,902,481	2,252,430

*Note: Production in 1927, 230,751,463 bbls., includes the production of Mount Poso, 40,277 bbls.; Round Mountain, 8,700 bbls.; Goleta, 86,840 bbls.; Seacliff, 5,923 bbls., and Petrero, 571 bbls.

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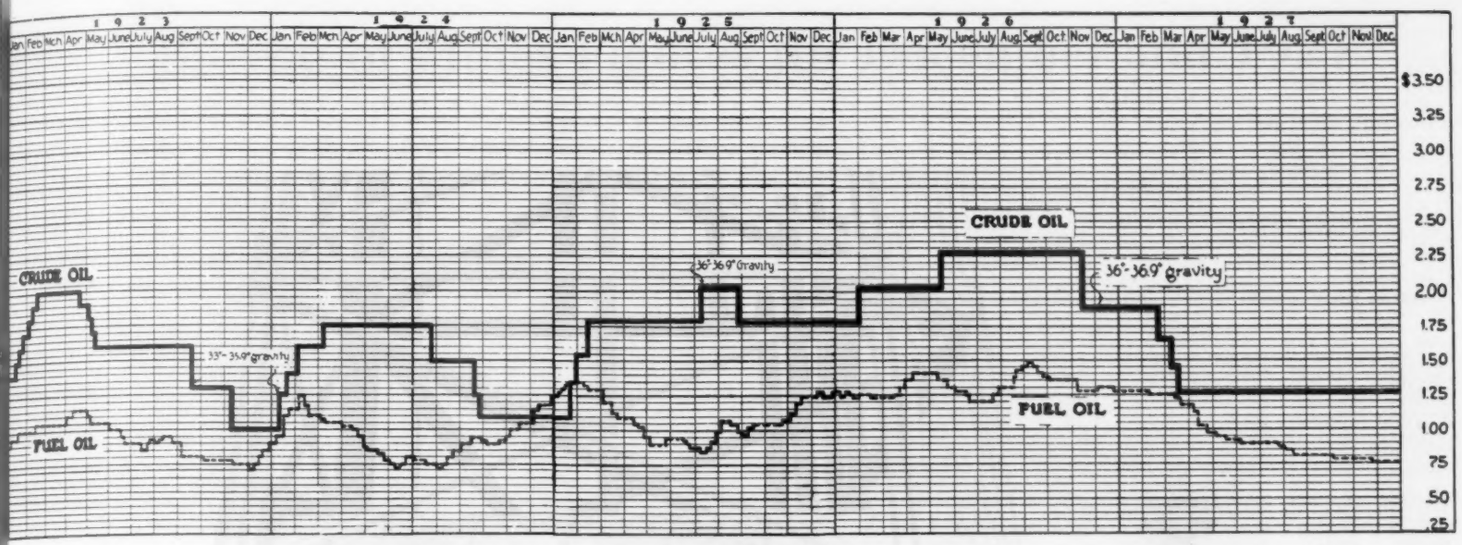


December 7	....	.75
December 14	....	.80
December 21	....	.85
December 29	....	.90
1924—		
January 8	....	.95
January 9 (33°-36.9)	1.25	....
January 15	....	1.10
January 19	1.40	....
January 22	....	1.15
February 2	1.60	....
February 5	....	1.25
February 12	....	1.17½
February 19	....	1.10
March 4	....	1.07½
March 8	1.75	....
March 11	....	1.05
April 1	....	1.02½
April 15	....	1.00
April 22	....	.95
April 29	....	.87½
May 6	....	.85
May 20	....	.82½
May 27	....	.77½
June 3	....	.75
June 10	....	.72½
June 17	....	.75
June 24	....	.80
July 1	....	.77½
July 17 (33° and above)	1.75	....
July 22	....	.75
July 28	1.50	....
August 5	....	.72½
August 12	....	.75
August 19	....	.80
August 26	....	.85
September 2	....	.90
September 16	....	.95
September 17	1.25	....
Sep.ember 27 (33°-35.9)	1.10	....
September 30	....	.92½
October 7	....	.90
October 21	....	.92½
October 28	....	.95
November 4	....	1.00
November 18	....	1.05
December 2	....	1.15
December 9	....	1.17½
December 30	....	1.25
1925—		
January 6	....	1.27½
January 13	....	1.30
January 20	....	1.32½
January 22	1.35	....
January 27	....	1.35
January 30	1.55	....
February 10	....	1.32½
February 12	1.30	....
February 17	....	1.30
March 3	....	1.20
March 17	....	1.12½
March 24	....	1.10
April 14	....	1.05
April 21	....	1.02½
April 28	....	.95
June 16	....	.92½
June 23	....	.90
June 30	....	.87½
July 7	....	.85
July 10 (36°-36.9)	2.04	....
July 14	....	.87½
July 21	....	.92½
July 28	....	1.00
August 4	....	1.07½
August 18	....	1.05
August 25	....	1.00
August 27	1.79	....
September 1	....	.97½
September 8	....	1.02½
September 15	....	1.05
October 27	....	1.07½
November 3	....	1.12½
November 10	....	1.20
November 17	....	1.25
December 8	....	1.27½
December 15	....	1.25
December 29	....	1.27½
1926—		
January 5	....	1.25
January 12	....	1.27½
January 19	....	1.25
January 26	....	1..
February 1	2.04	....
February 2	....	1.25
February 16	....	1.22½
March 16	....	1.25
March 23	....	1.30
March 30	....	1.35
April 13	....	1.40
May 11	....	1.35
May 15	2.29	....
May 25	....	1.30
June 1	....	1.27½
June 16	....	1.25
June 22	....	1.20
July 20	....	1.25
July 27	....	1.30
August 17	....	1.37½
August 24	....	1.42½
August 31	....	1.45
September 7	....	1.47½
September 14	....	1.45
September 21	....	1.40
September 28	....	1.37½
October 5	....	1.35
November 9	....	1.27½
November 17	1.90	....
December 7	....	1.30
December 28	....	1.27½
1927—		
January 1	1.90	....
January 4	....	1.27½
January 11	....	1.27½
January 18	....	1.27½
January 25	....	1.27½
February 1	....	1.27½
February 8	....	1.25
February 15	....	1.25
February 22	1.67	1.25
March 1	....	1.25
March 8	1.47	....
March 8	....	1.25
March 12	1.25	....
March 15	....	1.22½
March 22	....	1.17½
March 29	....	1.17½
April 5	....	1.12½
April 12	....	1.02½
April 19	....	.97½
April 26	....	.97½
May 2	....	.95
May 10	....	.95
May 17	....	.92½
May 24	....	.92½
May 31	....	.92½
June 7	....	.90
June 14	....	.90
June 21	....	.90
June 28	....	.90
July 5	....	.90
July 12	....	.90
July 19	....	.90
July 26	....	.87½
August 2	....	.85
August 9	....	.85
August 16	....	.80
August 23	....	.80
August 30	....	.80
September 6	....	.80
September 13	....	.80
September 20	....	.80
September 27	....	.80
October 4	....	.77½
October 11	....	.77½
October 18	....	.77½
October 25	....	.77½
November 1	....	.77½
November 8	....	.77½
November 22	....	.75
November 29	....	.75
December 6	....	.75
December 13	....	.75
December 20	....	.75
December 27	....	.75
November 15	....	.77½

OF THE INDUSTRY TO DECEMBER 31, 1927, BY FIELDS

Fullerton	Coyote	Santa Fe Springs	Montebello	Richfield	Huntington Beach	Long Beach	Torrance	Dominguez	Rosecrans	Inglewood	Newport	Seal Beach	Watsonville Misc.*	Total	Year
														175,000	Prior
														12,000	1876
														13,000	1877
														15,227	1878
														19,858	1879
														40,552	1880
														99,862	1881
														128,636	1882
														142,857	1883
														262,000	1884
														326,000	1885
														377,145	1886
														678,672	1887
														690,333	1888
														803,220	1889
														307,360	1890
														323,600	1891
														385,049	1892
														470,179	1893
													14,715	783,078	1894
													4,116	1,245,339	1895
													2,135	1,257,780	1896
													4,000	1,911,569	1897
													2,000	2,249,088	1898
													1,500	2,677,875	1899
													248,945	4,319,950	1900
														7,710,315	1901
														14,356,930	1902
													2,670	24,324,481	1903
													29,393	29,548,634	1904
													29,660	34,298,041	1905
													10,090	32,623,229	1906
													69,090	46,102,512	1907
													125,475	48,306,737	1908
													126,775	58,191,725	1909
													58,970	77,697,568	1910
													61,350	83,744,044	1911
													45,870	90,074,439	1912
													27,375	97,867,184	1913
													27,375	103,623,695	1914
													27,375	89,725,776	1915
													27,450	91,976,019	1916
			789,635										27,375	97,781,574	1917
			6,839,267										27,375	102,643,415	1918
			12,100,784	965,403									27,375	101,907,729	1919
			11,124,585	2,565,346	28,116								25,610	105,618,706	1920
			9,065,723	8,206,962	2,518,812	75,588							25,854	114,566,901	1921
		208,216	6,892,024	8,314,528	11,169,383	18,560,595	190,785						20,338	129,626,876	1922
		11,032,955	4,075,669	6,121,335	34,355,642	68,810,361	3,128,694	157,698					21,058	263,728,895	1923
		73,781,275	6,230,299	4,457,679	17,533,529	60,122,002	17,536,125	6,811,531	611,432	10,445			20,979	230,063,117	1924
		26,399,655	6,843,194	4,318,488	15,887,474	40,173,375	13,242,113	13,328,817	7,263,468	18,348,395	32,661		20,986	230,147,342	1925
		18,969,528	6,515,493	5,574,244	19,064,814	37,931,964	10,354,905	7,801,586	6,114,430	17,390,131	32,973	587,107	20,990	224,117,013	1926
		15,153,578	5,498,252	7,884,042	26,344,697	34,541,667	8,338,938	5,887,645	3,506,116	12,751,556	12,485	16,424,929	20,871	*230,761,463	1927
2,262,430	111,248,685	168,991,916	75,774,925	48,408,033	126,912,458	360,215,552	52,781,558	33,987,277	17,495,444	48,500,527	78,119	17,012,036	1,217,129	2,784,348,467	Total

listed in the table because of lack of space. These fields were opened in 1927.

*NOTICE
ALL CASING 10-INCH OR SMALLER-MUST BE RUN OR PULLED WITH A BOVAIRD ELEVATOR and SPIDER " "
SIGNED—
MOST PRODUCERS
* A STANDING ORDER — WITH MOST PRODUCERS
904 MID-CONTINENT BLDG.
TULSA, OKLA.
BOVAIRD

Bureau of Mines Figures for December and 1927*

According to reports received by the Bureau of Mines, Department of Commerce, from companies which operate gathering lines, the production of crude petroleum in the United States during December, 1927, amounted to 74,108,000 bbls., a daily average of 2,391,000 bbls. This represents another material drop in output, it being a decrease of 69,000 bbls. from the November daily average. Daily average production in Oklahoma fell off 70,000 bbls. in December, 23,000 bbls. of which was in the Seminole district. Texas, Louisiana, and Wyoming were the only states to show increased daily output in December. The increased output in Texas resulted mainly from developments in West Texas, although the Gulf Coast district also showed an increase, the first in several months. It is of more than passing interest that December, 1927, was the first time since 1902 in which production in Texas exceeded that in California. In general, the decreased output in December resulted from a general decline in activity as evidenced by the relatively small number of wells completed—905. This was the smallest number of completions since January, 1925.

Stocks of crude petroleum east of California amounted to 351,646,000 bbls. on the last day of the year. This represents an increase over stocks of November 30 of 2,761,000 bbls., which was the smallest addition to stocks since January, 1927. Stocks of both light and heavy crude in California decreased during the month.

Refined Products

A distinct falling off in refinery activity, due to the general decline in gasoline consumption, was evidenced in December, 1927, when daily average runs to stills amounted to 2,275,000 bbls. as against 2,326,000 bbls. the previous month. Daily runs to stills of foreign crude, however, showed a slight increase, reflecting increased imports of Venezuelan oil.

The decline in crude throughput resulted in a material decline in gasoline production from the record figures of November. Imports and exports of gasoline were also lower than in the previous month. Daily average domestic demand for gasoline in December was 765,000 bbls., a decline from the previous months of 48,000 bbls., or 6 per cent, but an increase over December, 1926, of 11 per cent. The decline in consumption of gasoline was reflected in stocks which increased in every refinery district except California. The total on hand on December 31 was 32,323,000 bbls., an increase over the previous month of 1,922,000 bbls. At the present rate of total demand, these stocks represent 37 days' supply as compared with 32 days' supply on hand a month ago and 49 days' supply on hand a year ago.

Among the minor products, the increased domestic demand for kerosene and wax were of particular interest. Stocks of gas oil and fuel oil east of California were drawn on quite extensively to meet the cold weather demand for fuel.

The refinery data of this report were compiled from schedules of 318 refineries, with an aggregate daily crude oil capacity of 2,869,000 bbls. These refineries operated during December, 1927, at 79 per cent of their recorded capacity, as compared with 322 refineries, operating at 81 per cent of their capacity in November, 1927.

Seminole Production

The production in the Seminole Field during December, 1927, amounted to 12,347,000 bbls., a daily average of 398,000 bbls. This represents a decrease in daily average production from the previous month of 23,000 bbls. This was the greatest decline for any month, except August, since the peak was reached in July. Completions in the field totaled 70 as against 99 in November; average initial production was 600 as against 800 bbls. in November. A total of 164 wells were drilling at Seminole on the last day of the year, as compared with 220 the month previous. Stocks at Seminole again increased, although not as much as in November.

The slump in production in the Panhandle was checked in December, when the daily average production was the same as in November. This resulted from an increase in completions and in average initial production which counterbalanced the natural decline of the old wells.

Production at Seal Beach again declined, while that of Long Beach again increased. Comparatively few completions were recorded in the latter due to the fact that sufficient time had not elapsed for the majority of tests to reach the recently discovered deep sand.

PRODUCTION AND GRAVITY

(Barrels of 42 U. S. gallons.)

	Nov., 1927—		—Dec., 1927—		—Dec., 1926—		Average
	Total	Dy. Av.	Total	Dy. Av.	Total	Dy. Av.	Gravity
Seminole	12,641,000	421,000	12,347,000	398,000	4,483,000	145,000	41.0
Panhandle	2,525,000	84,000	2,600,000	84,000	4,590,000	148,000	36.0
Seal Beach	1,500,000	50,000	1,340,000	43,000	295,000	10,000	24.0
Long Beach	3,050,000	102,000	3,400,000	110,000	2,924,000	94,000	26.0

ANALYSIS OF SUPPLY AND DEMAND OF ALL OILS

(Including wax, coke, and asphalt in thousands of barrels of 42 U. S. gallons.)

	Nov., 1927	Dec., 1927	Dec., 1926	Jan.-Dec., 1927	Jan.-Dec., 1926
NEW SUPPLY:					
Domestic production:					
Crude petroleum:					
Light	65,378	65,784	66,220	784,149	633,726
Heavy	8,400	8,324	12,405	110,286	137,148
Total crude	73,778	74,108	72,625	894,435	770,874
Natural-gas gasoline	3,410	3,512	3,100	38,751	32,305
Benzol	205	212	176	2,563	2,112
Total	77,393	77,832	75,901	935,749	805,291
Daily average	2,580	2,511	2,448	2,564	2,206
Excess of daily average domestic production over domestic demand	355	199	282	368	69
Imports:					
Crude	5,339	6,209	4,987	58,156	60,382
Refined	1,159	755	1,318	13,352	20,938
Total new supply all oils	83,891	84,796	82,206	1,007,257	886,611
Daily average	2,796	2,735	2,652	2,760	2,429
Change in stocks all oils	5,222	1,535	3,554	64,087	*24,764
DEMAND:					
Total demand	78,669	83,261	78,652	943,170	911,375
Daily average	2,622	2,686	2,537	2,584	2,497
†Exports:					
Crude	1,280	1,717	1,283	15,843	15,407
Refined	10,641	9,863	10,235	125,696	116,087
Domestic demand	66,748	71,681	67,134	801,631	779,881
Daily average	2,225	2,312	2,166	2,196	2,137
STOCKS (end of month):					
Crude:					
‡East of California:					
Light	300,475	303,639	225,404	303,639	225,404
Heavy	48,410	48,007	52,860	48,007	52,860
California:					
Light	21,191	20,058	30,861	20,058	30,861
§Heavy	92,555	91,797	87,270	91,797	87,270
Total crude	462,631	463,501	396,395	463,501	396,395
Natural-gas gasoline at plants	820	734	455	734	455
Total refined	119,198	119,949	123,247	119,949	123,247
Grand total stocks all oils	582,649	584,184	520,097	584,184	520,097
Bunker oil (included above in domestic demand)	3,953	4,264	4,066	49,893	46,662

*Decrease. †Includes shipments to noncontiguous territories. ‡Exclusive of producers' stocks. §Includes fuel oil.

*Prepared under supervision of G. R. Hopkins, head of statistics section, Petroleum Economics Division, United States Bureau of Mines; H. H. Hill, chief of division.

STOCKS AT SEMINOLE

(Barrels of 42 U. S. gallons.)

	Nov. 30, 1927	Dec. 31, 1927	Dec. 31, 1926
Producers' stocks	479,000	462,000	.....
Tank farm stocks	14,211,000	14,916,000	.....
Total stocks	14,690,000	15,378,000	.....

RECORD OF WELLS, DECEMBER, 1927

(Barrels of 42 U. S. gallons.)

	—Completions—			Tot'l Initial Production	Av. Initial Production	Drilling Dec. 31
	Oil	Gas	Dry			
Seminole	70	0	12	44,400	600	164
Panhandle	23	3	6	11,200	500	123
Seal Beach	1	...	...	100	100	5
Long Beach	4	...	...	6,000	1,500	94

PRODUCTION OF CRUDE PETROLEUM BY FIELDS AND STATES, WITH CLASSIFICATION BY GRAVITY

(Barrels of 42 U. S. gallons.)

	—November, 1927—		—December, 1927—		Jan.-Dec., 1927	Jan.-Dec., 1926*
FIELD:	Total	Daily Av.	Total	Daily Av.		
Appalachian	2,525,000	84,200	2,441,000	78,700	30,458,000	28,572,000
Lima-Indiana	131,000	4,400	129,000	4,200	1,833,000	2,030,000
Michigan	33,000	1,100	33,000	1,100	435,000	94,000
Ill.-S. W. Ind.	625,000	20,800	595,000	19,200	7,751,000	8,418,000
Mid-Continent	45,861,000	1,528,700	45,500,000	1,467,800	543,343,000	423,857,000
Gulf Coast	3,801,000	126,700	4,007,000	129,200	49,679,000	45,275,000
Rocky Mountain	2,286,000	76,200	2,464,000	79,500	30,184,000	37,945,000
California	18,516,000	617,200	18,939,000	610,900	230,752,000	224,673,000
Total U. S.	73,778,000	2,459,300	74,108,000	2,390,600	894,435,000	770,874,000
STATE:						
Arkansas	2,923,000	97,400	2,807,000	90,600	40,179,000	58,332,000
California	18,516,000	617,200	18,939,000	610,900	230,752,000	224,673,000
Colorado	219,000	7,300	217,000	7,000	2,787,000	2,768,000
Illinois	561,000	18,700	529,000	17,100	7,024,000	7,760,000
Indiana	72,000	2,400	74,000	2,400	852,000	808,000
Southwestern	64,000	2,100	66,000	2,100	727,000	658,000
Northeastern	8,000	300	8,000	300	125,000	150,000
Kansas	3,260,000	108,700	3,264,000	105,300	40,740,000	41,498,000
Kentucky	586,000	19,600	554,000	17,900	6,733,000	6,274,000
Louisiana	1,634,000	54,500	1,721,000	55,500	21,061,000	23,201,000
Gulf Coast	245,000	8,200	311,000	10,000	3,087,000	4,140,000
Rest of State	1,389,000	46,300	1,410,000	45,500	17,974,000	19,061,000
Michigan	33,000	1,100	33,000	1,100	435,000	94,000
Montana	361,000	12,000	344,000	11,100	5,048,000	7,727,000
New Mexico	77,000	2,600	80,000	2,600	1,203,000	1,666,000
New York	187,000	6,200	191,000	6,100	2,339,000	1,986,000
Ohio	591,000	19,700	564,000	18,200	7,629,000	7,272,000
Cent. and East.	468,000	15,600	443,000	14,300	5,821,000	5,392,000
Northwestern	123,000	4,100	121,000	3,900	1,708,000	1,880,000
Oklahoma	23,689,000	789,600	22,309,000	719,600	277,374,000	179,195,000
Osage County	1,796,000	59,800	1,807,000	58,300	23,586,000	25,356,000
Rest of State	21,893,000	729,800	20,502,000	661,300	253,688,000	153,839,000
Pennsylvania	800,000	26,700	782,000	25,200	9,596,000	8,961,000
Tennessee	6,000	200	4,000	100	60,000	43,000
Texas	18,156,000	605,200	19,406,000	626,000	213,768,000	166,916,000
Gulf Coast	3,556,000	118,500	3,696,000	119,200	46,592,000	41,135,000
Rest of State	14,600,000	486,700	15,710,000	506,800	167,176,000	125,781,000
West Virginia	478,000	15,900	467,000	15,100	6,009,000	5,946,000
Wyoming	1,629,000	54,300	1,823,000	58,800	21,146,000	25,776,000
Salt Creek	1,065,000	35,500	1,228,000	39,600	14,299,000	18,010,000
Rest of State	564,000	18,800	595,000	19,200	6,847,000	7,766,000
CLASSIFICATION BY GRAVITY (approx.):						
Light crude	65,378,000	2,179,300	65,784,000	2,122,100	784,149,000	633,726,000
Heavy crude	8,400,000	280,000	8,324,000	268,500	110,286,000	137,148,000

*Final figures; total includes approximately 3,900,000 bbls. consumed on leases, etc., not included in 1927 figures.

STOCKS OF CRUDE PETROLEUM HELD IN THE UNITED STATES

AT REFINERIES (and in coastwise transit thereto). Reported by location of storage:		Nov. 30, 1927	Dec. 31, 1927	Dec. 31, 1926*
East Coast:				
Domestic		8,045,000	8,690,000	7,240,000
Foreign		2,726,000	2,686,000	2,186,000
Appalachian		1,822,000	1,871,000	1,673,000
Indiana, Illinois, etc.		2,692,000	2,777,000	2,224,000
Oklahoma, Kansas, etc.		4,924,000	4,871,000	2,926,000
Texas:				
Inland		1,656,000	1,432,000	952,000
Gulf Coast:				
Domestic		7,653,000	7,686,000	8,194,000
Foreign		264,000	219,000	236,000
Arkansas and Inland Louisiana		457,000	408,000	601,000
Louisiana Gulf Coast:				
Domestic		6,104,000	6,149,000	7,019,000
Foreign		1,150,000	1,046,000	802,000
Rocky Mountain		1,394,000	1,400,000	1,422,000
Total east of California		38,827,000	39,235,000	35,475,000
ELSEWHERE THAN AT REFINERIES:				
Domestic—Reported by field of origin:				
Appalachian:				
N. Y., Pa., W. Va., Eastern and Central Ohio:	Gross	6,797,000	6,613,000	6,855,000
	Net	6,501,000	6,285,000	6,570,000
Kentucky:	Gross	1,216,000	1,168,000	1,350,000
	Net	1,090,000	1,041,000	1,220,000
Lima-Indiana:	Gross	1,263,000	1,247,000	877,000
	Net	1,109,000	1,134,000	666,000
Illinois-S. W. Indiana:	Gross	12,708,000	12,664,000	12,255,000
	Net	12,189,000	12,170,000	11,770,000
Mid-Continent:				
Oklahoma; Kansas; Central, North and West Texas:	Gross	229,754,000	233,997,000	154,558,000
	Net	218,378,000	221,558,000	142,208,000
Northern Louisiana and Arkansas:	Gross	28,005,000	28,174,000	24,318,000
	Net	25,577,000	25,373,000	21,640,000
Gulf Coast:	Gross	18,007,000	17,969,000	20,430,000
	Net	17,619,000	17,526,000	20,031,000
Rocky Mountain:	Gross	27,298,000	27,279,000	28,129,000
	Net	27,256,000	27,235,000	28,075,000
Total pipe line and tank farm stocks east of California:	Gross	326,048,000	329,151,000	258,772,000
	Net	309,719,000	312,322,000	242,180,000
Foreign crude petroleum on Atlantic Coast		106,000	52,000	165,000
Foreign crude petroleum on Gulf Coast		233,000	37,000	444,000
		339,000	89,000	609,000
Total refinery, pipe line and tank farm stocks of domestic and foreign crude petroleum east of Calif.		348,885,000	351,646,000	278,264,000
CLASSIFICATION BY GRAVITY (approx.):				
East of California:				
Light crude (24 degrees and above)		300,475,000	303,639,000	225,404,000
Heavy crude (below 24 degrees)		48,410,000	48,007,000	52,860,000
California: Light		21,191,000	20,058,000	30,861,000
Heavy (including fuel)		92,555,000	91,797,000	87,270,000

*Final figures.

SHIPMENTS OF CALIFORNIA OIL THROUGH PANAMA CANAL TO EASTERN PORTS IN UNITED STATES (Barrels)

	Nov., 1927	Dec., 1927	Jan.-Dec., 1927	Jan.-Dec., 1926*
Crude oil	864,000	886,000	10,691,000	11,104,000
Refined products	1,466,000	1,549,000	23,010,000	23,149,000
Gasoline	940,000	934,000	11,675,000	8,452,000
Tops	.....	.....	.....	224,000
Gas oil	382,000	542,000	4,028,000	5,800,000
Fuel oil	75,000	72,000	6,952,000	8,115,000
Lubricants	69,000	1,000	355,000	557,000

*Final figures.

(Continued on Page 201)

Prolific Deep Sands of California

Discovery of New Deep Horizons in Many Pools Has Played Important Part in the Past Two Years

By L. P. Stockman
Staff Correspondent, California Fields

California produced a total of 230,751,463 bbls. of crude during the past 12 months, 6,634,450 bbls. in excess of the output in 1926, and although prospectors have opened up seven new fields during the past two years, Mount Poso, Round Mountain, Goleta, Rincon, Seal Beach, Potrero and Edison, only one of this imposing array of conquests played an important part in California's heavy output of crude during the past couple of years. This was Seal Beach, discoverad by the Marland Oil Co. in 1926 and extended a little over a mile eastward by the Pan American in 1927. Production figures indicate that Seal Beach produced 587,107 bbls. in 1926 and 16,424,929 bbls. in 1927, the greater part of which came from the intensely developed Alamitos Heights town lot section, a subdivided area which was extremely susceptible to extensive drilling because of numerous individual property holdings. The older section of this field is still held intact by the Marland, Associated and Standard, this trio having refrained from competitive work. That part of Seal Beach will be heard from at a later date and the three companies just mentioned have a nice reserve for that proverbial rainy day when crude won't be as plentiful as it is at present. A new deep zone has recently been picked up in the Alamitos Heights town lot area below the 6,000-foot level and from present indications this field will reach a higher level some time in the next six months due to deep drilling. Very little is known of the potentiality of this newly discovered horizon and while the discovery well, No. 1 Bonner of the Richfield Oil Co., is only flowing 600 bbls. of 30.1 gravity oil daily, deeper drilling may reveal the presence of a much thicker sand, in which event future drilling may prove more productive than present developments indicate.

Deep drilling and extension work in older areas has really played a more important part than recent discoveries in maintaining the state's high yield during the past few years as Seal Beach is the only field finished since January 1, 1926, which has shown anything like substantial production, the other recent acquisitions being of minor consequence as far as actual production is concerned. It is easy to realize therefore that the older fields, those discovered previous to this time, have been more or less responsible for a large part of California's excessive production during the past few years. The fields mentioned above may play an important part in state production during 1928 but up to date there is nothing to indicate such a possibility, in fact the Seacliff-Rincon Field of Ventura County looks like the only one of this group which might result in additional substantial production during the next six or eight months and this depends almost entirely upon the potentiality of a new projected deep zone. The deep sand at Seal Beach of course may also exert an appreciable effect on state production but attention has already been directed to this possibility.

Ten Wells on Five Acres

The Seacliff Field does not contain a subdivided town lot area but there might just as well be one as the intensive drilling work now under way will accomplish the same result. The irregularity of property lines is responsible for much of the excessive drilling now under way as one well in some instances calls for several offsets and these offsets require others. Operators seem to have thrown caution to the four winds for in their wild scramble to get production in this area very little thought has been given to economic development. This is evidenced by the fact that there are at least ten wells on a five-acre group of leases in the center of present development along the ocean front. The present limited state zone will not sustain this intensive drilling unless subsequent work opens up an additional thickness of sand and it is logical to assume therefore that additional prospecting work will be undertaken in the not far distant future.

The real threat at Seacliff or Rincon, as it will be known in the future, lies in the existence and rapid development of a deep possible prolific horizon. It does not take any stretch of the imagination to realize the potentialities of this field if subsequent deep drilling should result in the finding of a highly productive sand especially in view of the fact that these operators could be expected to stage one of the fastest drilling campaigns ever undertaken in California. This possible future work at Rincon would not be as extensive in scope as some of the recent town lot drilling at Huntington and Seal Beach as the acreage in this field susceptible to intensive drilling is rather limited in extent. The Chanslor-Canfield Midway Oil Co. appears to have all but a small section tied up but these irregular pieces of acreage now under development, however, may show substantial production especially if intensely drilled. The most interesting feature in connection with the future production of Rincon is the fact that at least 20 wells will be deepened immediately if a lower prolific horizon is encountered. The wells completed up to date in the shallow zone have been finished with 8¼ and 10-inch casing in order that they may be deepened quickly if subsequent drilling opens up another lower zone.

Deep Drilling in Old Fields

Huntington Beach, Ventura Avenue, Seal Beach, Long Beach, Richfield and Kern River are the fields primarily responsible for California's excessive production during the past two years. Only one of these, Seal Beach, is of recent origin, all of the others being more than five years old. Inglewood, discovered in 1924, might also be classified as a contributing factor as it produced 17,390,131 bbls. in 1926 and 12,751,556 bbls. in 1927, although this field did not experience any appreciable new development during the past year and consequently showed a smaller output. The increases in production shown by Huntington Beach, Ventura Avenue, Seal Beach, Long Beach, Richfield and Kern River during the past two years are directly due to deepening operations and extension work. Huntington Beach was slowly passing out of the picture until the field was extended by the opening up of a town lot area out along the ocean front in the summer of 1926. The rapid inauguration of an intensive drilling campaign resulted in the development of substantial flush production during the latter part of that year and this continued over into the early part of 1927.

7,000-Foot Production

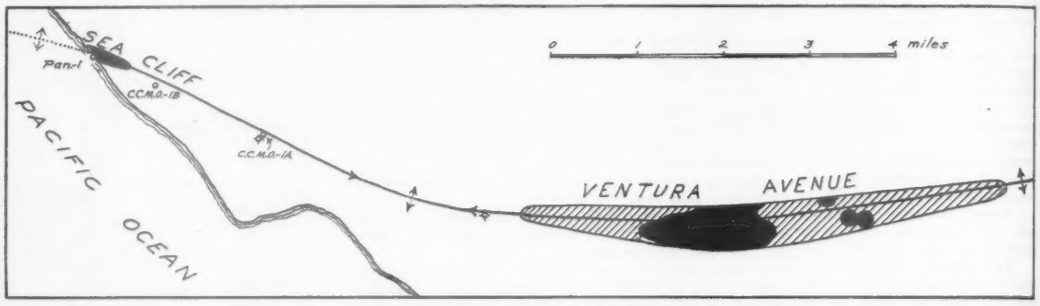
The Ventura Avenue Field has shown a consistent gain in production each year since 1919 due to both increased work and deeper drilling. During the early stages of development operators were content to complete their respective wells in this field around the 5,000-foot level but now it is customary to get production anywhere from 6,000 to 7,000 feet. This deep drilling has naturally resulted in a substantial gain during the past two years, the total daily average output increasing from 19,176 bbls. in 1925 to 40,536 bbls. in 1926 and 48,791 bbls. in 1927. Present indications point to a still larger production during 1928 due to increased development and deeper drilling. Production of the Richfield district reflects a combination of both deeper drilling and extension work. The Chiksan Oil Co. started the ball rolling in this field by deciding to make a deep conclusive test of a projected lower zone which was believed to underly its property. The company's curiosity was well rewarded as this exploratory work resulted in the completion of a large flowing well and increased property values tremendously, subsequent drilling also extending the productive limits of the field. This initial deep well led to additional similar work with the result that the daily average production of this field increased from 11,831 bbls. in 1925 to 15,272 bbls. in 1926 and 21,600 bbls. in 1927. The deep sand in this field incidentally has not been exhausted by any means, the present limited amount of drilling being reduced by mutual consent.

Rejuvenation of Kern River

Kern River, one of the oldest fields in the entire state, has experienced a revival of work after a long period of inactivity and the completion of approximately 115 new wells out along the West Front during the past year accounts for the appreciable gain in production shown. George F. Getty and the Marland Oil Co. are directly responsible for the present scope of work as these operators pioneered this district when others had passed it up for more than 15 years due to the fact that it was thought the outer limits of the old Kern River Field had been established beyond any doubt. The former did not share this opinion and moved out a couple of miles beyond any previous production and started a test well on the Tegeler property during the summer of 1925.

This well showed an initial pumping

(Continued on Page 187)



THREE PRODUCING STRUCTURES DISCOVERED IN MONTANA IN 1927

By F. B. Taylor
Staff Correspondent, Rocky Mountain Area

Three new producing structures in Montana were opened to development during 1927. The actual value of these new districts had not been definitely proven at the end of the year, but all show possibilities of commercial production. The Montana Pacific Oil Co. completed a well on the Pondera structure in Pondera County which made both oil and gas in the top of the sand. Litigation prevented deeper drilling in this well, and work on other holes started later was closed down on account of the weather before completion. The Genou Oil & Gas Co. brought in a 30-bbl. and a 60-bbl. producer on the Bannatyne Dome in Teton County, but a dozen or more wells have been completed since without an oil strike. None of these, however, was within 1¼ miles of the discovery well, and while they show the productive area to be restricted, they have not definitely determined the possibilities of the field.

The third structure opened was the Bears Den, Liberty County, east of the Sweetgrass Hills. The Sunburst Oil & Gas Co. completed a 15,000,000-foot gas well on this dome, and a second well was started late in the fall. Wildcat drilling in Montana has been stimulated by these strikes, and many scattered structures are being drilled.

Several important transfers, involving large sums of money, took place in 1927. The California Eastern Oil Co. took over the Sunburst Oil & Refining Co.'s refinery early in the year for a consideration of $750,000. The last week in December saw the purchase by the Hughes Oil Co. of the Arro Oil & Refining Co.'s 53 service and bulk stations in Montana. The Hughes Oil Co., a subsidiary of the Midwest Refining Co., paid approximately $500,000 for the properties. The Texas Pacific Coal & Oil Co., which has operated in Montana through its subsidiary, the Homestake Exploration Co., entered the Montana fields under its own name late in the year, and took over acreage in the Bannatyne area.

Kevin-Sunburst Premier Field

The Kevin Sunburst Field continued to hold premier place among Montana operations. A number of good wells were completed in the east side extension in Township 33, Range 1. In the Wilcox Pool in Township 34, Ranges 1 and 2, considerable excitement was aroused by the completion of a gusher in August by the National Oil Co. This well made 1,250 bbls. a day when first connected with the pipe line, and afterward increased its flow. First estimates on production of this well ran as high as 8,000 bbls. a day. A drilling campaign in this

(Continued on Page 270)

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New Production in Rocky Mountains

Black-Oil Pool in Wyoming Starts With Big Well. Deeper Oil Sands in Colorado and New Producing Spots Found in New Mexico

By Tolbert R. Ingram
Staff Correspondent, Rocky Mountain Area

Drilling operations in Wyoming, Colorado, Utah and New Mexico showed a considerable decrease in 1927, compared with 1926, there being 586 completions in the four states compared with 783 in the preceding year, a decrease of 197 wells. Colorado was the only State which showed an increase. The number of dry holes was 184 in 1927, compared with 183 in 1926.

The principal discoveries were the opening of what appears to be a major black oil pool on the Oregon Basin structure, in Park County, Wyoming; the discovery of oil in two new horizons below levels previously tested on the Iles and Moffat Domes in Colorado; the opening of a small pool in McKinley County, New Mexico, and several discoveries in the southeastern part of that State in Eddy and Lea Counties. Utah had nothing but failures. A discovery was made on the Ant Hills anticline in Niobrara County, Wyoming, but its significance was not fully established at the end of the year. Sublet County, Wyoming, operations progressed to the point where sufficient production had been developed to warrant the construction of a pipe line. Several smaller discoveries of less importance were made in the states named, and drilling in the proven fields was on a decreased scale compared with the preceding year. Wildcatting continued over a wide area throughout the year and while numerous failures were reported, the percentage does not appear to be abnormal.

Wyoming

A discovery on the Oregon Basin structure in Park County, early in 1927, which points to the opening of a major black oil pool was the outstanding development of the year in Wyoming. The La Barge Field in Sublet County, in the southwestern part of the State, made considerable progress during the year and developed a production in excess of 2,000 bbls. a day. A wildcat drilling on the Ant Hills anticline in Niobrara County, in the eastern part of the State, opened up a discovery that made 250 bbls. a day for two days and then was drilled on down only to encounter water in a lower sand. Oil and gas were found in the Sundance formation in Carbon County. Testing of new structures resulted in several failures and the year ended with the Salt Creek Field maintaining its superior position.

The transfer of a large standing order for gasoline for export amounting to 6,000,000 to 8,000,000 gallons a month, from the Midwest Refining Co. at Casper to affiliated interests nearer the shipping port, which the Casper refineries had been supplying for several years, large stocks of refinery products on hand, and a decreased seasonal demand resulted in the curtailment of runs at the Casper refineries for a part of the year, but in the fall runs were back to normal. Drilling in Salt Creek continued, but not on quite so large a scale as in the preceding year when the Lakota and Sundance sands were being more extensively tested. This year the activities centered more on the devlopment of the Wall Creek sands with the exception of Lakota sand wells drilled in accordance with offsetting regulations and to feel out the productive area of that horizon. Late in the year a production test of approximately 100 Lakota sand and shale wells at 100 per cent capacity was made. These wells, which had an aggregate initial production of 170,560 bbls., showed an aggregate production of 93,760 bbls. in a 24-hour test at the time the entire field was tested.

The Lakota wells are not produced regularly, but are shut in after testing for 24 hours, and the object of the field test principally was to work out engineering problems for producing this horizon in the future and to establish the water line. It is proposed to produce the Lakota sand as a unit operation if such a plan can be worked out. Salt Creek is electrically operated and is in many respects an ideal development. The test made in the fall gives a reliable lineup on the large reserves stored in the ground in this field for future needs. At the end of 1927 there were 2,127 wells in the field, compared with 2,053 wells at the end of 1926. Wells in the various horizons at the ends of the years named compare in number as follows:

	1927	1926
Frontier Shale	80	104
1st Wall Creek	310	260
2nd Wall Creek	1,616	1,606
3rd Wall Creek	11	13
Lakota Shale	22	...
Lakota	85	67
Sundance	3	3
Total	2,127	2,053

Late in 1927, the Producers & Refiners Corp. transferred its contract with the State of Wyoming for the purchase of royalty oil from state lands to the White Eagle Oil & Refining Co. in adjustment of agreements whereby the first named company was to supply the White Eagle company with crude for its Casper refinery.

The Teapot Dome ceased to be an operating factor at the end of the year when a decree was signed in the Federal District Court restoring the land to the Navy Department and cancelling the lease of the Mammoth Oil Co. The 62 wells on the dome, which were producing around 800 bbls. a day, were plugged and the pool is no longer producing.

Hamilton Dome on Production

Hamilton Dome, in Hot Springs County, was put back on a production basis during the year, the crude, a black oil, being refined at Greybull where the Midwest Standard refineries are equipped for handling that grade of oil. Mule Creek, which has been shut down at intervals

Wyoming
Daily Average and Monthly Production in 1927

	January	February	March	April	May	June	July	August	September	October	November	December	Total
BIG MUDDY—													
Daily average	2,782	3,018	2,970	3,031	2,944	2,852	2,880	3,094	3,093	3,009	2,915	2,715	
Month	86,242	84,504	92,070	90,930	91,264	85,560	89,280	95,914	92,790	93,279	87,450	84,165	1,073,448
BYRON—													
Daily average	45	54	54	79	79	51	70	52	71	62	37	51	
Month	2,356	1,512	1,674	2,370	2,449	1,530	2,170	1,612	2,130	1,922	1,110	1,581	22,416
DALLAS-DERBY—													
Daily average	139	96	40	47	46	511	295	297	223	226	.....	.....	
Month	4,309	2,688	1,240	1,410	1,426	15,330	9,145	9,207	6,690	7,006	.....	.....	58,457
ELK BASIN—													
Daily average	755	885	902	865	990	907	703	1,030	1,050	1,060	1,095	901	
Month	23,405	24,780	27,962	25,950	30,690	27,210	21,793	31,930	31,500	32,860	32,850	27,931	338,861
FERRIS—													
Daily average	76	85	75	25	61	65	96	100	41	46	55	50	
Month	1,348	2,380	2,325	750	1,891	1,950	2,976	3,100	1,230	1,426	1,650	1,550	22,576
GRASS CREEK—													
Daily average	2,842	2,662	2,760	3,100	2,318	2,750	2,695	2,634	2,660	2,680	2,680	2,479	
Month	88,102	74,536	85,560	93,000	71,858	82,500	83,545	81,654	79,800	83,080	80,400	76,849	980,884
GREYBULL—													
Daily average	6	22	15	16	18	20	17	21	25	24	17	20	
Month	172	644	465	480	558	600	527	651	750	744	510	620	6,721
HUDSON—													
Daily average	185	51	40	8	129	185	100	100	740	580	635	825	
Month	5,735	1,428	1,240	240	3,999	5,550	3,100	3,100	22,200	17,980	19,050	25,575	109,197
HAMILTON—													
Daily average	305	450	1,275	1,001	1,165	1,290	1,207	1,295	1,090	617	597	601	
Month	9,455	12,600	39,525	30,030	36,115	38,700	37,417	40,145	32,700	19,127	17,910	18,631	332,356
LA BARGE—													
Daily average	304	241	120	55	315	360	450	475	510	620	630	619	
Month	9,424	6,748	3,720	1,650	9,765	10,800	13,950	14,725	15,300	19,220	18,900	19,189	143,391
LANCE CREEK—													
Daily average	759	780	675	730	660	777	595	685	785	785	626	972	
Month	23,529	21,840	20,925	21,900	20,460	23,310	18,445	21,235	23,550	24,335	18,780	30,132	268,441
LOST SOLDIER—													
Daily average	5,115	4,365	4,315	4,490	3,425	3,620	3,190	2,970	3,530	2,730	2,940	2,615	
Month	158,565	122,220	133,765	134,700	106,175	108,600	98,890	92,070	105,900	84,630	88,200	81,065	1,314,780
MULE CREEK—													
Daily average	.....	.....	.....	.....	1,235	980	980	725	665	615	628	636	
Month	.....	.....	.....	.....	38,285	29,400	30,380	22,475	19,950	19,065	18,840	19,716	198,111
NOTCHES—													
Daily average	.....	.....	.....	.....	.....	.....	.....	.....	210	57	48	.....	
Month	.....	.....	.....	.....	.....	.....	.....	.....	6,300	1,767	1,440	.....	9,507
OSAGE—													
Daily average	345	383	325	365	335	384	286	325	310	318	386	327	
Month	10,695	10,724	10,075	10,950	10,385	11,520	8,866	10,075	9,300	9,858	11,580	10,447	124,475
PILOT BUTTE—													
Daily average	.....	.....	.....	.....	.....	.....	.....	.....	117	200	.....	.....	
Month	.....	.....	.....	.....	.....	.....	.....	.....	3,510	6,200	.....	.....	9,710
POISON SPIDER—													
Daily average	315	210	180	165	425	1,010	1,400	1,178	960	630	625	255	
Month	9,765	5,880	5,580	4,950	13,175	30,300	43,400	36,518	28,800	19,530	18,750	7,905	224,553
ROCK CREEK—													
Daily average	2,813	2,860	2,822	2,820	2,605	2,707	2,725	2,620	2,685	2,518	2,500	2,614	
Month	87,253	80,080	87,482	84,600	80,755	81,210	84,475	81,220	80,550	78,058	75,000	81,034	981,822
REX LAKE—													
Daily average	189	187	166	128	130	105	95	141	145	99	.....	.....	
Month	5,859	5,236	5,146	5,640	4,030	3,150	2,945	4,371	4,350	3,069	.....	.....	43,796
SALT CREEK—													
Daily average	42,365	42,633	41,610	43,311	43,329	42,235	42,415	35,725	32,750	32,250	34,901	39,982	
Month	1,313,315	1,193,724	1,289,910	1,299,330	1,343,199	1,267,050	1,314,865	1,107,475	982,500	999,750	1,047,030	1,239,442	14,397,590
SIMPSON RIDGE—													
Daily average	50	25	60	90	12	68	112	87	75	36	77	75	
Month	1,550	700	1,860	2,700	372	2,040	3,482	2,697	2,250	1,116	2,310	2,325	23,672
TEAPOT—													
Daily average	953	927	965	883	950	849	890	890	855	858	715	.....	
Month	29,543	25,956	29,915	26,490	29,450	25,470	27,590	27,590	25,650	26,598	21,450	.....	295,702
DUTTON CREEK—													
Daily average	.....	.....	.....	.....	.....	38	45	31	.....	.....	.....	.....	
Month	.....	.....	.....	.....	.....	1,140	1,395	961	.....	.....	.....	.....	3,496
Daily average	60,346	59,935	59,369	61,269	61,171	61,784	61,246	54,475	52,590	50,020	52,107	55,747	57,489
Total 1927	1,870,737	1,678,180	1,840,439	1,838,070	1,896,301	1,852,920	1,898,626	1,688,725	1,577,700	1,550,620	1,563,210	1,728,157	20,983,675

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for several years, also operated most of the year, the crude going to Canada.

During the year progress was made on plans to pipe natural gas from the Baxter Basin Field in Sweetwater County, and several structures in Utah and Colorado, to Salt Lake City, but actual construction work has not yet commenced, pending signing of contracts for the marketing of the gas of which there is a supply of 200,000,000 feet a day available.

Year's Principal Discovery

The principal discovery of the year was on the Oregon Basin anticline in Park County, by the Ohio Oil Co., in its No. 3 Sonners, on the NW NW NE Section 8-51-100. This structure, a gas producer in the Frontier and Wall Creek sands for several years, was tested to the Embar-Tensleep series in the Pennsylvanian by the Ohio Oil Co., the well coming in last March at around 3,580 feet, as a black oil producer. Little information became available as to the capacity of the well, it being shut in immediately upon drilling in, but it is estimated anywhere from 3,000 to 30,000 bbls. It is known, however, to have filled a 250-bbl. tank in 13 minutes. The structure, which is comparable with Salt Creek in size, consists of two domes known as the north and south domes. The oil discovery in the lower horizons took place on the north dome, but the activity which resulted extended to the south dome, a larger structure than the north dome, and upon which similar conditions prevail, some old wells having developed large flows of gas in the upper horizons, but not tested to the new oil horizon. The importance of the discovery is apparent when it is known that the Illinois Pipe Line Co. laid an 8-inch line from the field to loading racks at Cody, and constructed two 80,000-bbl. tanks at the railhead and a 55,000-bbl. tank in the field, though no oil has yet been run. At the end of the year one other well, half a mile to the west, reached the top of the Embar at 3,255 feet and found oil under approximately the same conditions as in the discovery well, but it has not at this writing been drilled in. Considerable dealing in leases and the starting of about 15 tests on both structures resulted, the largest sum being paid is reported to have been $2,000,000 by the Ohio Oil Co. in order to acquire control of 800 acres on the top of the south dome under control of the Enalpac Oil & Gas Co. The low grade of the oil is one drawback to the development of the pool, but operators are going ahead regardless of this and several of the wells are about due to reach the objective horizon. Most of the more important wells are being drilled by electric power installed by the Oil Fields Power Co. which built a transmission line from the Shoshoni Dam to the field. Rotaries are used extensively in drilling. About 15 wells were drilling at the close of the year.

In the La Barge District

Next in importance to this discovery is the development in the La Barge district in Sublet County, in the southwestern part of the State. This area is badly broken up and there seems to be no geological reasons for the presence of the oil, but in spite of that more than 63 producing wells have been drilled. The California Petroleum Corp. is the principal operator, with the Utah Oil Refining, Texas Production and other companies having large holdings. During the year the California Petroleum Corp. made a contract with the Midwest to sell its production to the latter if it would construct a line from the field to a railroad. A 30-days production test was completed late in the year and this showed the wells had a capacity in excess of 2,200 bbls. a day, or 200 bbls. more than the requirements for the construction of the line. As a result, plans for building the line in the spring are under way and the oil will go to the Utah Oil Refining Co. at Salt Lake City. Drilling operations radiate in almost all directions from the district. The biggest well completed during the year made 247 bbls. initially, it being located in the heart of the pool in Section 34-27-113. The Calpet organization is drilling a deep test in the NW SE, Section 34-27-113, at present shut down under 4,800 feet for the winter. The Texas Production Co. did some diamond drill prospecting in Section 15-26-113, and opened up a 40-bbl. oil well, which also is making water.

Slight Oil in Niobrara

The Buck Creek Oil Co. drilled a wildcat in its No. 1 Delahoyde, NE NE, Section 25-37-63, Niobrara County, 12 to 15 miles northeast of the Lance Creek Field, which bailed 250 bbls. a day of light oil from a sand at 3,946-52 feet until tankage was filled. It then resumed drilling after casing off the oil; and ran into water less than 100 feet below the sand. Drilling is continuing and the company has started two other tests. The oil is coming either from the Muddy sand of the Dakota series, or the Newcastle sand, 150 feet above the Muddy.

Efforts to test the Garland structure in Big Horn and Park Counties, 30 miles north of the Oregon Basin Field, continued during the year. This structure, 10 miles long and 3 miles wide, with 2,600 feet of closure, ranks close to Salt Creek in size. Gas has been found in the Frontier and Dakota horizons and attempts were made during the year to get through the gas into the horizon that produced oil on Oregon Basin. The deepest well, structurally, was the Ohio Oil Co.'s No. 2 Cross Gas, NW NW, Section 33-56-97, which reached the lower Embar, but failed to get to the Tensleep. It was completed at 3,163 feet as a 40,000,000-foot gasser. Producers & Refiners and the Kinney-Coastal Oil Co. have a test under way and the Utah Southern Oil Co. is also drilling a well in its No. 3, SE NW, Section 29-56-97. This test had a show of oil in the Sundance at 2,261 feet, and is drilling ahead. It is probable that in the spring the Ohio will put in a rotary rig and try again for the Tensleep where the results at Oregon Basin are expected to be duplicated.

In the Big Muddy Field, drilling was not conducted on a large scale. The Continental Oil Co. drilled a well to the Lakota sand and had a production of 250 bbls. The Texas Production Co. tried for a deep test but had to abandon the hole. It is waiting until spring to make another try for the deeper sand.

Activity in Carbon

There was considerable activity in Carbon County. Two tests were drilled on the Medicine Bow structure. Producers & Refiners and Texas Production Co., in a joint test on Section 25-21-79, abandoned the hole at 4,270 feet without reaching the Dakota, and The Texas Company had a dry hole on Section 23-21-79. The Producers & Refiners had a 250-bbl. well in the Sundance at 2,628-70 feet in its No. 19, SE, Section 25-26-87, on the Ferris Dome, and the Prairie Oil & Gas Co. had a 19,000,000-foot gas well in the Sundance in its No. 3-C, on Section 34-26-88, on the Mahoney Dome. The Sundance was thus proven on two structures. This is the horizon in which a 6,000-bbl. well was completed in Salt Creek in 1926, and which has proven productive on two structures in northwestern Colorado. The Ohio Oil Co. kept two strings of tools working steadily in the Rock Creek Field, but no new territory was opened.

In Platte County, the Bear Oil Co. had a dry hole in its No. 1 Guernsey, NE SW, Section 11-26-67. In Big Horn County, the old Torchlight Field received some attention from the Producers & Refiners where some old shallow wells were taken over, cleaned out and put on production, a 3-mile 2-inch line being laid to deliver the oil at the railroad.

In Fremont County, the Texas Production Co. completed a 150-bbl. well in its No. 8 Keenan, Section 22-6n-3w, in the Maverick Springs Field, and the Union Oil Co. of California's No. 17, NE SW, Section 15-6n-2w, was a 250-

(Continued on Page 274)

Colorado

Daily Average and Monthly Production in 1927

	January	February	March	April	May	June	July	August	September	October	November	December	Total
CRAIG—													
Daily average	2,720	2,534	2,334	2,102	1,887	1,535	1,578	1,610	1,585	1,404	1,367	1,215	
Month	84,320	70,952	72,354	63,060	58,497	46,050	48,918	49,910	47,550	43,524	41,010	37,665	663,810
FORT COLLINS—													
Daily average	3,298	3,906	3,630	3,455	3,259	3,053	3,205	3,020	2,835	2,785	3,023	2,767	
Month	102,238	109,368	112,530	103,650	101,029	91,590	99,355	93,620	85,050	86,335	90,690	85,777	1,161,232
FLORENCE—													
Daily average	380	545	650	804	841	943	997	987	920	916	849	813	
Month	11,780	15,260	20,150	24,120	26,071	28,290	30,907	30,597	27,600	28,396	25,470	25,203	293,844
ILES—													
Daily average	47	44	70	1,518	478	507	525	492	517	1,285	1,404	1,251	
Month	1,457	1,232	2,170	45,540	14,818	15,210	16,275	15,252	15,510	39,835	42,120	38,781	248,290
TOW CREEK—													
Daily average	366	618	785	945	970	989	950	900	695	495	484	462	
Month	11,346	17,304	24,335	28,350	30,070	29,670	29,450	27,900	20,850	15,345	14,520	14,322	263,462
WALDEN—													
Daily average	.....	205	243	205	155	88	166	157	128	106	83	.....	
Month	.....	5,740	7,533	6,150	4,805	2,640	5,146	4,867	3,840	3,286	2,490	.....	46,397
RANGELY (Estimated)—													
Daily average	100	100	100	100	100	100	100	100	100	100	100	100	
Month	3,100	2,800	3,100	3,000	3,100	3,000	3,100	3,100	3,000	3,100	3,000	3,100	36,500
BOULDER (estimated)—													
Daily average	25	25	25	25	25	25	25	25	25	25	25	25	
Month	775	700	775	750	775	750	775	775	750	775	750	775	9,125
Daily average	6,936	7,977	7,837	9,154	7,715	7,240	7,546	7,291	6,805	7,116	7,335	6,633	7,469
Total 1927	215,016	223,356	242,947	274,620	239,165	217,200	233,926	226,021	204,150	220,596	220,050	205,623	2,732,670
Total 1926	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1,934,200
Difference	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	798,470

Montana

Daily Average and Monthly Production in 1927

	January	February	March	April	May	June	July	August	September	October	November	December	Total
CAT CREEK—													
Daily average	2,403	2,371	2,396	2,325	2,300	2225	2,110	2,080	2,002	1,942	1,855	1,849	
Month	74,493	66,388	74,276	69,750	71,300	66,750	65,410	64,480	60,060	60,202	55,650	57,319	786,078
KEVIN-SUNBURST—													
Daily average	11,135	11,727	12,001	11,380	11,505	13,079	12,387	13,725	11,534	11,655	10,640	11,011	
Month	345,185	328,356	372,031	341,400	356,655	392,370	383,997	425,475	346,020	361,305	319,200	341,341	4,313,335
LAKE BASIN—													
Daily average	220	183	203	195	200	107	240	239	240	240	157	154	
Month	6,820	5,124	6,293	5,850	6,200	3,210	7,440	7,409	7,200	7,440	4,710	4,774	72,470
Daily average	13,758	14,281	14,600	13,900	14,005	15,411	14,737	16,044	13,776	13,837	12,652	13,014	13,894
Total 1927	426,498	399,868	452,600	417,000	434,155	462,330	456,847	497,364	413,280	428,947	379,560	403,434	5,171,883
Total 1926	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	7,744,605
Difference	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	2,572,722

New Mexico

Daily Average and Monthly Production in 1927

	January	February	March	April	May	June	July	August	September	October	November	December	Total
ARTESIA—													
Daily average	2,110	1,935	1,725	1,763	1,760	1,755	1,515	1,371	1,540	1,340	1,515	1,271	
Month	65,410	54,180	53,475	52,890	54,560	52,650	46,965	42,501	46,200	41,540	45,450	39,401	596,222
HOGBACK—													
Daily average	755	835	794	760	696	761	425	410	475	265	597	590	
Month	23,405	23,380	24,614	22,800	21,576	22,830	13,175	12,710	14,250	8,215	17,910	18,290	223,155
RATTLESNAKE—													
Daily average	1,344	1,950	2,093	2,150	999	710	775	535	275	128	159	128	
Month	41,664	54,600	64,883	64,500	30,969	21,300	24,025	16,585	8,250	3,968	4,770	3,968	339,482
TABLE MESA—													
Daily average	200	225	186	65	175	178	165	165	160	159	126	55	
Month	6,200	6,300	5,766	1,950	5,425	5,340	5,115	5,115	4,800	4,929	3,780	1,705	56,425
Daily average	4,409	4,945	4,798	4,738	3,630	3,404	2,880	2,481	2,450	1,892	2,397	2,044	3,226
Total 1927	136,679	138,460	148,738	142,140	112,530	102,120	89,280	76,911	73,500	58,652	71,910	63,364	1,214,284

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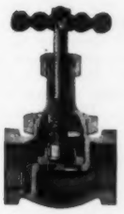

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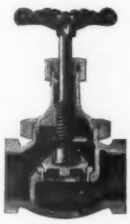

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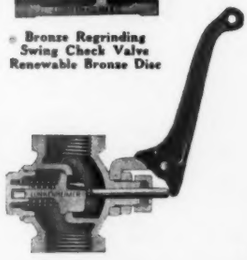
Screw or Flange Ends

Iron Body "Ferrenewo"
Check Valve
Renewable
Nickel Seat and Disc



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44-2A-91

Hunt for Salt Domes on Gulf Coast

Year's Work Devoted to Finding the Fields of the Future. Spindletop's Impressive New Production Record

By Neil Williams
Staff Correspondent, Gulf Coast Fields

Although actual oil field development in the Texas and Louisiana coastal territory was comparatively inactive during 1927 much interest was attached to the search for additional salt domes with a view to the discovery of new production when conditions in the industry warrant. Geophysical operations, which were more extensive during the year than at any other time since this work was started, covered virtually every part of the coastal district, not only southern Texas and Louisiana but also Mississippi.

In other words, the year 1927 was a period of preparation in which operators were more concerned in locating favorable spots on which they might drill for future oil fields rather than spending any efforts on development of new production for the present. In the majority of cases, due to the secrecy enveloping these operations, all acreage is taken up quickly and quietly by one company or by several major interests jointly. Thus there is no immediate need or occasion for an active drilling play.

What geophysical operations of 1927 will uncover in the way of new production remains to be seen. A half dozen new domes, or rather prospective domes, were spotted during the year in various parts of the coastal territory, production around which remains to be proved. In some of the districts where the existence of new domes is believed to have been indicated, no drilling has been done other than shallow geological tests.

As is known, the discovery of a dome does not necessarily mean the finding of a new oil field. Drilling of the past has averaged only one productive dome in three. Also, the fact that the productive area around a dome usually is extremely limited, generally results in years and years of costly drilling before the oil is tapped. There are a few instances in this territory of domes on which wildcatting has been going on for 20 years without finding the pay.

Two Domes Proved Productive

However, among field developments of the year was the discovery of oil on two new domes, Starks in eastern Calcasieu Parish, Louisiana, and Hackberry, in northern Cameron Parish, Louisiana. The first Starks producer, flowing 2,500 bbls. daily, was brought in last January while the Hackberry production was tapped early in November by a well flowing 1,000 bbls. daily.

Two additional producers have been completed at Starks although at the close of the year the entire net oil production was averaging only between 350 and 400 bbls. daily. Three other Starks tests were abandoned. Production at present is only on the north flank of the dome and at depths ranging from 4,249 to 4,794 feet.

Starks Dome is owned and operated jointly by the Gulf Refining Co. of Louisiana and the Standard Oil Co. of Louisiana. Considerable drilling has been done on the north and south flanks and at scattered places near the top of the dome before production was tapped. Two other tests now are drilling.

The Hackberry production was found by the Calcasieu Oil Co., the Magnolia Petroleum Co. and the Union Sulphur Co. in that district known as Kelso Bayou. This is approximately 3 miles east of where the original drilling activity.

(Continued on Page 178)

GULF COAST

Daily Average and Monthly Production in 1927

	January	February	March	April	May	June	July	August	September	October	November	December	Total
BOLING—													
Daily average	2,418	2,175	1,521	1,919	2,110	1,971	2,131	2,019	2,319	2,347	2,243	2,216	
Month	74,958	60,900	47,151	57,570	65,410	59,130	66,061	62,589	69,570	72,757	67,290	68,696	772,082
BATSON—													
Daily average	1,603	1,626	1,524	1,393	1,521	1,337	1,285	1,293	1,364	1,275	1,263	1,262	
Month	49,693	45,528	47,244	41,790	47,151	40,110	39,835	40,083	40,920	39,525	37,890	39,122	508,891
BLUE RIDGE—													
Daily average	2,897	2,587	2,845	3,113	4,112	4,681	3,963	3,014	2,327	2,773	4,331	4,771	
Month	89,807	72,436	91,195	93,390	127,472	140,430	122,853	93,434	69,810	85,963	129,930	147,901	1,264,621
BARBER'S HILL—													
Daily average	594	566	975	1,160	900	734	925	919	860	962	877	637	
Month	18,414	15,848	29,335	34,800	27,900	22,020	28,675	28,489	25,800	29,822	26,310	19,747	307,160
BIG CREEK—													
Daily average	2,575	2,169	4,466	5,231	5,192	4,047	3,194	3,116	2,633	4,051	3,067	2,166	
Month	79,825	60,732	138,446	156,930	160,952	121,410	99,014	96,596	78,990	125,581	92,010	67,146	1,277,632
DAMON MOUND—													
Daily average	926	988	962	935	924	895	844	867	882	817	793	852	
Month	28,706	27,664	29,822	28,050	28,644	26,850	26,164	26,877	26,460	25,327	23,790	26,412	324,766
DAYTON—													
Daily average	67	67	56	39	32	30	375	327	301	231	394	271	
Month	2,077	1,876	1,736	1,170	992	900	11,625	10,137	9,030	7,161	11,820	8,401	66,925
EDGERLY, LA.—													
Daily average	599	857	930	672	662	1,106	1,344	2,163	2,716	2,213	2,121	2,225	
Month	18,569	23,996	28,830	20,160	20,522	33,180	41,664	67,053	81,480	68,603	63,630	68,975	536,662
GOOSE CREEK—													
Daily average	8,087	7,731	7,451	8,565	8,851	8,387	7,914	7,904	8,211	7,774	7,817	7,467	
Month	250,697	216,468	240,961	256,950	274,381	248,610	245,334	245,024	246,330	240,994	234,510	231,477	2,931,736
HUMBLE—													
Daily average	4,057	3,873	3,985	4,243	4,395	4,436	4,340	4,325	4,449	3,724	4,323	3,944	
Month	125,767	108,444	123,535	127,290	136,245	133,080	134,540	134,075	133,470	115,444	129,690	122,264	1,523,844
HULL—													
Daily average	17,127	17,237	16,682	16,978	19,477	17,044	15,015	14,914	15,014	17,168	14,947	12,914	
Month	530,937	482,636	517,142	509,340	603,787	511,320	465,465	462,334	450,420	532,208	448,410	400,354	5,914,333
HIGH ISLAND—													
Daily average	326	737	602	472	405	215	189	185	126	55	31	132	
Month	10,106	20,636	18,663	14,160	12,555	6,450	5,859	5,735	3,780	1,705	930	4,092	104,670
JENNINGS, LA.—													
Daily average	807	1,057	1,049	952	968	1,078	1,210	1,066	1,281	1,261	1,301	1,166	
Month	25,017	29,596	32,529	28,560	30,008	32,340	37,510	33,046	38,430	39,091	39,030	36,146	401,303
LOCKPORT, La.—													
Daily average	3,090	3,412	4,437	7,540	6,977	6,667	6,875	5,681	5,410	6,029	5,365	5,042	
Mon.h	95,790	95,536	137,547	226,200	216,287	200,010	213,125	176,111	162,300	186,899	160,950	156,002	2,026,757
MARKHAM—													
Daily average	560	553	567	520	462	447	394	387	250	250	257	251	
Month	17,360	15,484	17,577	15,600	14,322	13,410	12,214	11,997	7,500	7,750	7,710	7,781	148,706
NASH—													
Daily average	816	614	861	965	1,102	1,363	951	977	1,106	1,449	1,571	1,362	
Month	25,296	17,192	27,691	28,950	34,162	40,890	29,481	30,287	33,180	44,919	47,130	42,222	401,400
ORANGE—													
Daily average	6,376	5,411	5,154	5,298	5,610	5,875	5,111	5,101	4,867	4,464	4,415	4,056	
Month	197,656	151,508	159,774	158,940	173,910	176,250	158,441	158,131	146,010	138,384	132,450	125,736	1,877,190
ORCHARD—													
Daily average	73	87	42	38	174	146	82	81	83	82	81	90	
Month	2,263	1,896	1,302	1,140	5,332	4,380	2,542	2,511	2,490	2,542	2,430	2,790	31,319
PIERCE JUNCTION—													
Daily average	6,287	7,530	11,056	7,716	9,080	7,767	6,510	6,460	7,471	10,241	11,122	12,681	
Month	194,897	210,840	341,736	231,480	281,480	233,000	201,810	200,260	224,130	317,471	333,660	393,111	3,163,885
PIEDRAS PINTAS—													
Daily average	182	200	170	113	84	90	100	100	99	93	99	100	
Month	5,642	5,600	5,270	3,390	2,604	2,700	3,100	3,100	2,970	3,038	2,970	3,100	40,384
SPINDLETOP—													
Daily average	81,750	69,130	60,075	51,000	54,150	60,525	54,155	54,144	56,912	52,157	50,747	54,694	
Month	2,534,250	1,935,640	1,862,225	1,530,000	1,678,650	1,815,750	1,678,805	1,678,464	1,707,360	1,616,867	1,522,410	1,695,514	21,264,935
SARATOGA—													
Daily average	1,192	1,235	1,205	1,165	1,135	1,122	1,205	1,147	1,091	1,062	1,079	1,095	
Month	36,952	34,580	37,355	34,950	35,185	33,660	37,355	35,557	32,730	32,922	32,370	33,945	417,661
SOUR LAKE—													
Daily average	4,765	5,418	5,402	4,932	4,639	4,365	4,220	4,340	4,282	4,067	4,000	3,814	
Month	147,715	151,704	167,462	147,960	143,809	130,950	130,820	134,540	128,460	126,077	120,000	118,234	1,647,731
SULPHUR, LA.—													
Daily average	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	575	467	
Month	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	17,250	14,477	31,727
SOUTH LIBERTY—													
Daily average	4,101	4,153	4,034	3,770	3,429	2,978	2,754	2,703	2,275	2,111	2,042	1,984	
Month	127,131	116,284	125,054	113,100	106,299	89,340	85,374	83,793	68,250	65,441	61,260	61,504	1,102,830
VINTON, LA.—													
Daily average	5,640	5,675	5,230	5,476	5,226	4,950	6,820	5,640	4,811	4,918	4,945	4,701	
Month	174,840	158,900	162,130	164,280	162,006	148,500	211,730	174,840	144,330	152,458	148,350	145,731	1,948,895
WEST COLUMBIA—													
Daily average	10,502	10,271	10,339	10,177	9,324	9,237	9,275	8,863	9,716	9,032	8,691	8,807	
Month	325,562	287,588	310,509	305,310	285,944	276,810	287,525	274,753	291,480	279,992	260,730	273,017	3,459,220
WELSH-ANSE LA BUTE—													
Daily average	72	74	60	54	38	26	24	25	25	26	26	28	
Month	2,232	2,072	1,860	1,620	1,178	780	744	775	750	806	780	868	14,455
STARKS, LA.—													
Daily average	.....	.....	2,625	1,422	1,144	1,033	750	600	982	537	382	325	
Month	.....	.....	80,375	42,660	35,464	30,990	23,250	18,600	29,460	16,647	11,460	10,075	298,981
MISCELLANEOUS—													
Daily average	1,297	2,082	1,746	1,494	1,596	1,312	1,020	410	100	92	310	804	
Month	40,207	58,296	53,126	44,820	49,476	39,360	31,620	12,710	3,000	3,038	9,300	24,924	369,877
Total	168,786	157,485	156,051	147,352	153,617	153,754	142,985	138,771	141,963	141,272	139,215	140,324	1,483,422
Total 1927	5,232,366	4,409,580	4,837,581	4,420,560	4,762,127	4,612,620	4,432,535	4,301,901	4,258,890	4,379,432	4,176,450	4,350,044	54,174,686
Total 1926	3,023,877	2,820,608	3,034,683	2,842,050	3,208,721	2,849,970	2,785,069	5,287,019	5,655,960	5,433,029	5,285,730	5,570,607	48,806,578
Difference	2,208,489	1,588,972	1,802,898	1,578,510	1,553,906	1,762,650	647,466	985,118	1,397,070	1,053,597	1,109,280	1,220,563	5,367,511
Total 1925	2,383,646	2,463,780	2,840,499	3,176,690	3,436,071	3,296,620	3,315,698	3,045,340	3,077,339	3,210,372	2,876,640	2,921,880	34,850,575
Total 1924	2,778,880	2,701,272	2,967,630	2,424,390	2,456,657	2,419,800	2,522,191	2,608,092	2,480,880	2,471,209	2,471,170	2,618,819	30,166,000

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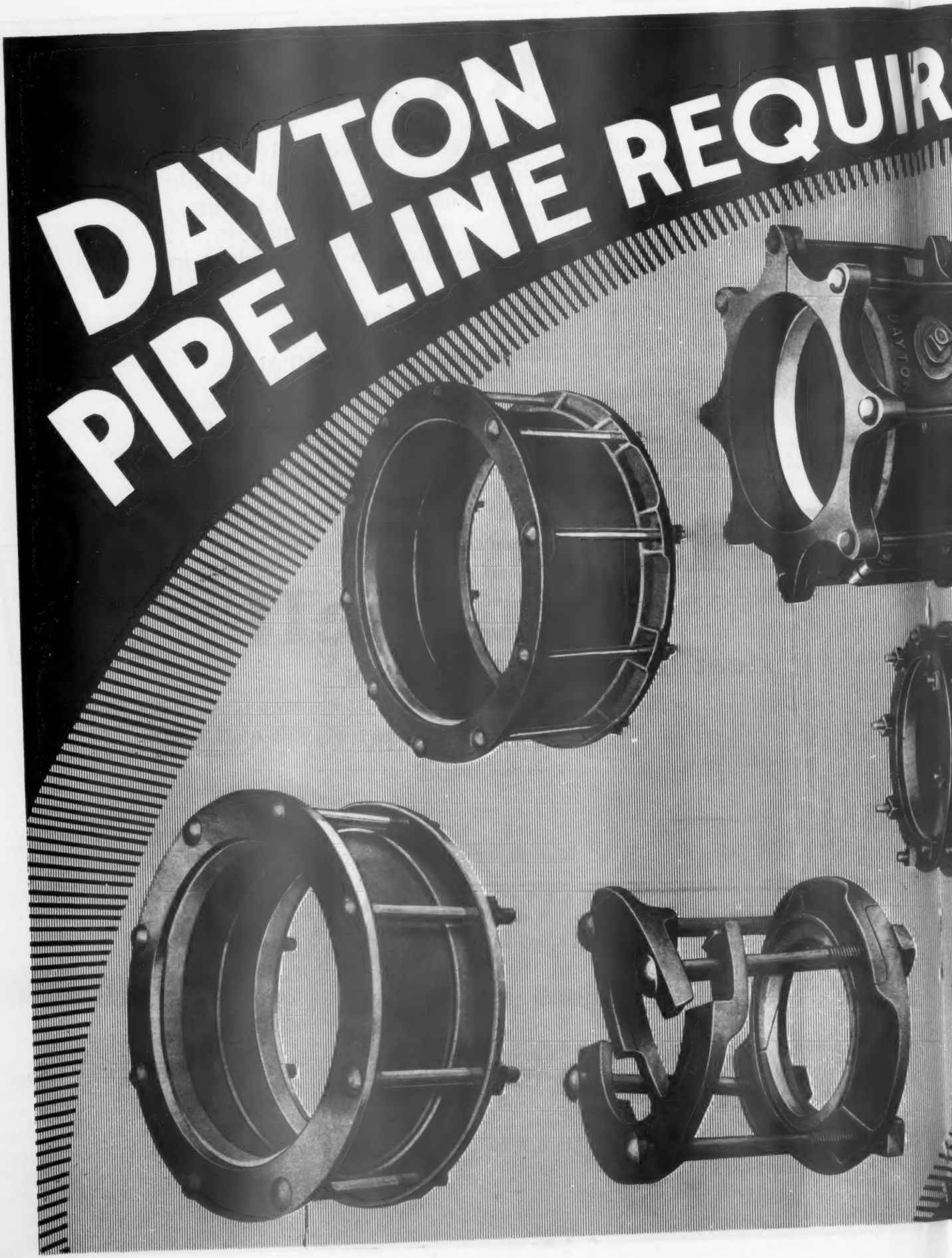
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Louisiana-Arkansas' Big Gas Year

While Oil Production Fell Off in 1926, the Gas Industry Thrived in the Two States. Important Discoveries

By D. H. Bancroft
Staff Correspondent, North Louisiana-Arkansas

The year just closed was distinctly a gas year in so far as development of oil and gas in north Louisiana, Arkansas, and east Texas is concerned, differing in that respect as well as in several others from previous periods of the 21 years of exploration in this territory. It was a gas year not only in number of wells completed and in their initial open flow capacity, but also in view of the fact that the size and importance of the two new gas fields developed by the wildcatter outrank the size and importance of the two new oil pools uncovered. Also, all the major pipe line activity during the year had to do with the transportation and marketing of natural gas. It was different, too, in that by far the greater amount of development work was done in the oldest and the newest of all the producing areas of the Shreveport group—Caddo and Smackover. Caddo, for instance, had as many completions as all Arkansas put together and was only 10 behind the total for Union and Ouachita Counties in which El Dorado, Lisbon, El Dorado East Side, Smackover, the short-lived Urbana district, Stephens and the new Champagnolle Pool are located. Together, these pools accounted for 264 completions while Caddo is credited with 259.

There was considerable less drilling throughout the territory during the year than there was in 1926 and daily average pipe line runs from the field were on a steady decline in all districts save Caddo light, due to the Pine Island's Trinity horizon development that began on a fairly large scale in July, and in Nevada County which, late in the year reached 3,950 bbls. daily, the highest level it has attained. The 1927 completion record shows 1,178 wells drilled of which only 433 were oil producers. These had a total initial production of only 55,159 bbls. There were 460 failures—dry, salt water and junked holes with a few locations abandoned without being drilled. Gas wells totaled 285 with a total initial open flow capacity of 3,370,679,481 feet per day. In 1926, there were 2,150 completions of which 1,397 were producers with a total initial production of 146,496 bbls.; 552 failures and 201 gas wells with a total initial open flow capacity of 2,624,100,000 feet per day.

This great difference in activities and results is accounted for by two chief factors: First, the enormous overproduction of crude oil in Seminole, West Texas and California; and in the second place to the fact that Smackover, after three successive "come backs" which produced a situation paralleling Seminole's effect on the industry in the Mid-Continent, finally settled to a steadily declining stage. The new development in Caddo was limited practically to one section and the two new pools uncovered during the year were anything but intensively drilled. Decline in daily average runs from the field of 76,470 bbls.—from 216,466 bbls. as of December 31, 1925, to 139,990 bbls. as of December 31, 1927—was due to natural decline as the producing wells grew older and many of them were abandoned as pumped out. Another very expensive but minor factor influencing the slackening in activities in the three major divisions of Shreveport territory — Smackover, northeast Louisiana and the Red River Valley in which all the northwest Louisiana producing areas are located, were the spring floods in the Mississippi, Arkansas, Ouachita and Red Rivers which kept much of Smackover, Monroe and northwest Louisiana Pools under water for weeks. Of more lasting effect was a series of cuts in the price of crude oil, especially Smackover, posted in February and March.

The combination of the high stage of water and the low stage of crude prices produced by the Seminole and West Texas oil floods during the spring virtually stopped development in the Shreveport territory for the remainder of the year save in five areas, in which it discovered and developed the new Pleasant Hill and Champagnolle oil fields, Cartersville and Richland Parish gas fields and the limited Trinity horizon in Pine Island, Caddo Parish. The end of the year found this territory with 8,346 wells producing at an average rate of 17.42 bbls. per well, as compared to 8,129 producers having an average of 22.67 bbls. a year ago. Thus, while Pine Island Trinity development, Pleasant Hill and Champagnolle completions, coupled with routine completions in Caddo shallower horizons (the chief consideration), Nevada County, Smackover and a few in other older pools, were offsetting pumped out producers and adding 217 oil wells during the latter half of the year, their average production was 5.15 bbls. per well less. The decline in Smackover heavy oil runs alone during the year amounted to approximately 35,000 bbls. per day while the decline in all pools during the year amounted to more than the present daily average pipe line run of that oil. The average of all wells in Smackover, the first, second and third heavy oil sands and the Louann light oil district on December 31, was 25.1 bbls. per well from 3,275 wells.

Lawson-Urbana

The extent to which exploration was carried on in each of the counties and parishes of the Shreveport territory and its results is shown in the accompanying tables but the highlights in the territory as a whole were scattered throughout the year. The prospective Lawson-Urbana Pool was indicated by Simms Oil Co. and Sun Oil Co. in August, 1926, when their No. 1 Simmons, in Section 9-18-13, 15 miles southeast of El Dorado which blew in with an estimated 60,000,000 feet of gas and 30,000 bbls. of salt water, total depth 2,560 feet. It was killed and deepened to 3,001 feet coring two or three lower sands en route and then plugged back to 2,519 feet where it tested 25,000,000 feet of gas, several thousand barrels of water and enough oil to color the water and was finally abandoned.

Meantime the usual activity following such a wildcat showing had been going

(Continued on Page 294)

North Louisiana

Daily Average and Monthly Production in 1927

	January	February	March	April	May	June	July	August	September	October	November	December	Total
BELLEVUE—													
Daily average	1,606	1,493	1,471	1,593	1,400	1,362	1,401	1,225	1,180	1,222	1,170	1,082	
Month	49,786	41,804	45,601	47,790	43,400	40,860	43,431	37,975	35,400	37,880	35,100	33,540	492,567
CADDO (Light)—													
Daily average	8,470	10,126	10,104	9,840	9,525	9,781	16,453	17,204	13,423	12,735	12,614	11,945	
Month	262,570	283,528	313,224	295,200	295,275	293,430	510,043	533,324	402,690	394,785	378,420	370,295	4,332,784
CADDO (Heavy)—													
Daily average	3,932	4,511	4,477	4,555	4,625	4,656	5,532	5,303	5,115	5,087	4,600	3,979	
Month	121,892	126,308	138,787	136,650	143,375	139,680	171,492	164,393	153,450	157,697	138,000	123,349	1,715,073
COTTON VALLEY—													
Daily average	6,555	6,114	6,103	5,992	5,700	5,620	5,510	5,415	5,355	5,176	5,111	4,956	
Month	203,205	171,192	189,193	179,760	176,700	168,600	170,810	167,865	160,650	160,455	153,330	153,636	2,055,396
DESOTO-RED RIVER—													
Daily average	4,042	3,973	4,140	4,297	3,560	3,829	4,050	4,015	4,043	4,091	4,218	4,196	
Month	125,302	111,244	128,340	128,910	110,360	114,870	125,550	124,465	121,290	126,820	126,540	130,076	1,473,767
ELM GROVE—													
Daily average	625	726	692	615	615	691	670	655	684	672	676	657	
Month	19,375	20,328	21,452	18,450	19,065	20,730	20,770	20,305	20,520	20,800	20,280	20,547	242,622
HAYNESVILLE—													
Daily average	8,365	8,144	7,988	7,831	7,750	7,752	7,495	7,292	7,070	7,147	7,004	6,755	
Month	259,315	228,032	247,628	234,930	240,250	232,560	232,345	226,060	212,100	221,555	210,120	209,405	2,754,300
HOMER—													
Daily average	5,292	5,342	5,305	5,206	5,190	5,134	4,968	4,800	4,370	4,731	4,691	4,598	
Month	164,052	149,576	164,455	156,180	160,890	154,020	154,008	148,800	131,100	146,660	140,730	142,538	1,813,009
URANIA—													
Daily average	12,375	12,214	11,001	10,446	8,600	8,460	9,532	9,645	9,352	9,383	9,207	8,520	
Month	383,625	341,992	341,031	313,380	266,600	253,800	295,492	298,995	295,560	290,875	276,210	264,120	3,621,650
PLEASANT HILL—													
Daily average	.....	.....	.....	.....	445	549	885	835	1,152	1,091	916	724	
Month	.....	.....	.....	.....	13,795	16,470	27,435	25,885	34,560	33,820	27,480	22,444	201,889
Daily average	51,262	52,643	51,281	50,375	47,410	47,834	56,496	56,389	52,244	51,355	50,207	47,390	51,241
Total 1927	1,589,122	1,474,004	1,589,711	1,511,250	1,469,710	1,435,020	1,751,376	1,748,067	1,567,320	1,591,347	1,506,210	1,469,950	18,703,087
Total 1926	1,343,788	1,288,000	1,511,219	1,566,580	1,530,705	1,809,180	1,780,175	1,761,513	1,703,190	1,801,224	1,696,411	1,689,655	19,771,640
Total 1925	1,519,434	1,346,105	1,566,131	1,528,037	1,600,306	1,520,325	1,552,807	1,537,786	1,433,760	1,487,969	1,371,862	1,384,243	17,848,765
Total 1924	1,398,370	1,314,242	1,498,574	1,311,142	1,401,835	1,617,610	1,601,365	1,588,873	1,568,773	1,500,053	1,703,481	1,595,278	18,099,596
Total 1923	2,272,641	1,911,560	2,204,319	2,136,590	2,135,298	1,986,283	1,668,922	1,738,790	1,580,760	1,624,431	1,610,190	1,422,910	22,282,694

Arkansas

Daily Average and Monthly Production in 1927

	January	February	March	April	May	June	July	August	September	October	November	December	Total
EL DORADO—													
Daily average	6,039	6,054	5,928	6,102	6,210	6,180	5,928	5,780	5,675	5,913	5,987	6,141	
Month	187,209	169,512	183,768	183,060	192,510	185,400	183,768	179,180	170,250	183,395	179,610	190,371	2,188,033
LISBON—													
Daily average	5,505	5,031	4,714	4,382	3,960	3,825	3,612	3,340	3,066	2,991	2,744	2,605	
Month	170,655	140,868	146,134	131,460	122,760	114,750	111,972	103,540	91,980	92,720	82,320	80,755	1,389,914
NEVADA—													
Daily average	1,834	1,807	1,770	1,422	1,469	1,417	1,595	2,180	2,485	2,993	3,657	3,348	
Month	56,854	50,596	54,870	42,660	45,539	42,510	49,445	67,580	74,550	92,785	109,710	107,788	794,887
SMACKOVER (Light)—													
Daily average	12,385	12,082	11,608	11,400	11,115	11,060	10,887	10,505	9,540	9,306	9,201	9,314	
Month	383,935	338,296	359,848	342,000	344,565	331,800	337,497	325,655	286,200	288,486	276,030	288,734	3,903,046
SMACKOVER (Heavy)—													
Daily average	103,999	101,044	98,745	87,785	88,490	88,266	86,415	81,405	79,016	78,027	73,992	72,707	
Month	3,223,969	2,829,232	3,061,095	2,633,550	2,743,190	2,647,980	2,678,865	2,523,555	2,370,480	2,418,837	2,219,760	2,253,917	31,604,430
STEPHENS—													
Daily average	1,429	1,414	1,344	1,392	1,345	1,316	1,331	1,280	1,205	1,213	1,204	1,210	
Month	44,299	39,592	41,664	41,760	41,695	39,480	41,261	39,680	36,150	37,605	36,120	37,310	476,616
BRADLEY—													
Daily average	308	220	211	125	110	128	125	110	112	112	107	125	
Month	9,548	6,160	6,541	3,750	3,410	3,840	3,875	3,410	3,360	3,470	3,210	3,875	54,449
Daily average	131,499	127,652	124,320	112,608	112,699	112,192	109,893	104,600	101,099	100,555	96,892	95,450	110,716
Total 1927	4,076,469	3,574,256	3,853,920	3,378,240	3,493,669	3,685,760	3,406,683	3,242,600	3,032,970	3,117,298	2,906,760	2,962,750	40,411,375
Total 1926	5,489,604	4,756,836	5,115,837	5,127,510	5,482,939	5,064,760	5,019,892	4,878,191	4,603,236	4,625,138	4,299,480	4,266,189	58,729,604
Total 1925	3,252,303	2,886,296	3,564,478	7,560,220	11,315,996	9,200,372	7,335,819	7,450,580	6,457,950	6,409,281	5,927,955	6,047,852	78,407,132
Total 1924	3,686,680	2,302,750	3,382,595	4,068,225	4,659,117	4,756,443	4,597,969	4,359,241	4,029,535	3,983,696	3,461,050	3,380,511	48,167,912
Total 1923	3,222,605	2,740,024	2,978,802	2,873,820	3,219,319	3,463,227	3,712,738	3,292,580	3,165,900	3,120,274	2,973,000	4,017,850	38,766,149

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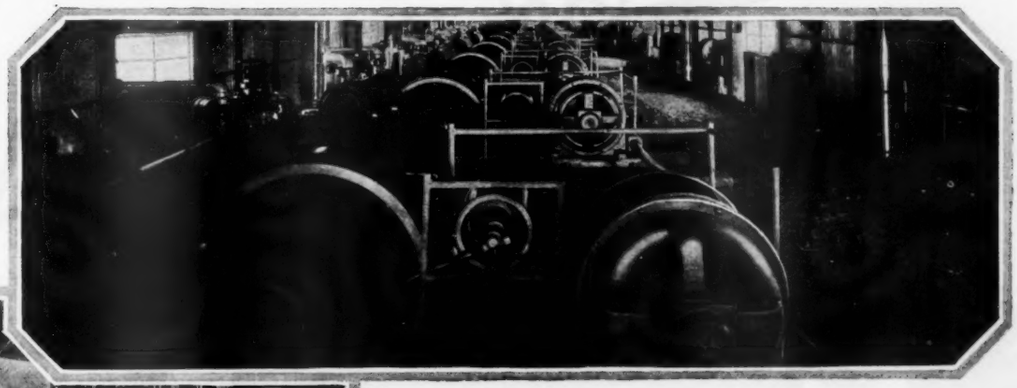

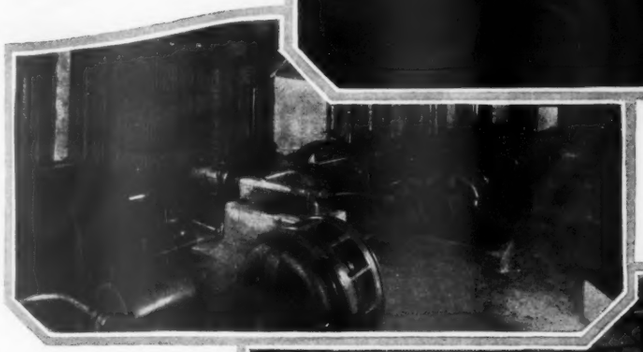

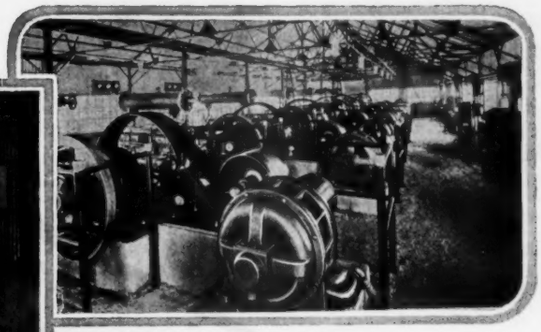

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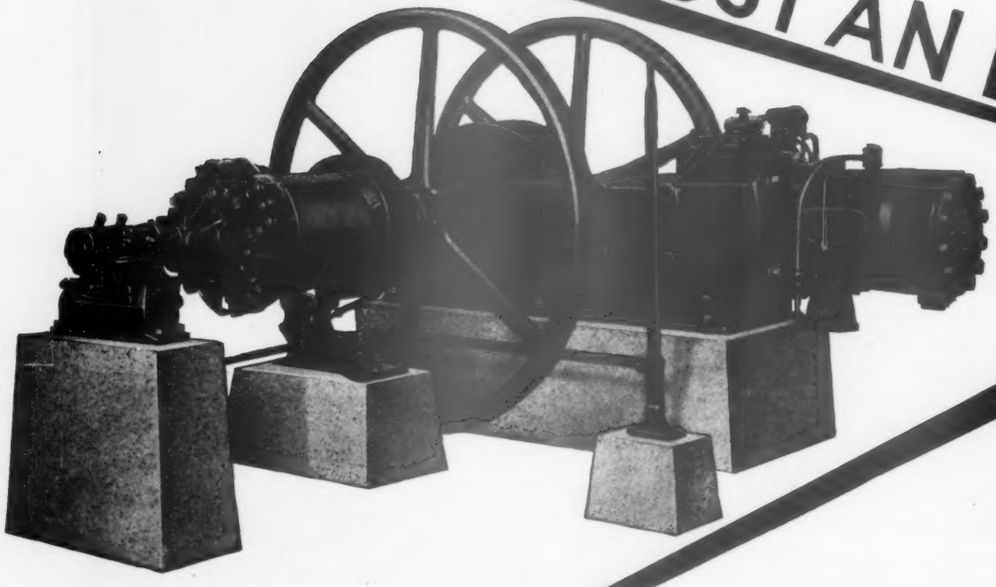

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Good Year for Ohio Gas Producers

But Central West Oil Operators Did Not Fare so Well. Much Wildcatting Done in Ohio, Indiana and Illinois

By Whit

Staff Correspondent, Central West

The year 1927 brought forth an interesting season of development of the oil and gas regions of the old Central West Field, in the face of a big overproduction in the fields west of the Mississippi River and the lowering of the price of crude. An interesting part was the opening of new areas adjacent to old producing regions. There was a falling off in completed wells and new production, but this could be expected when one figured the existing conditions of the producing industry. The average initial production of the new wells for the year, 24 bbls. per well, was all that could be expected.

During 1927 greater quantities of natural gas were developed and operating expense in most of the fields were from 20 to 25 per cent less than the previous year. Material can be had at a price slightly under that of 1926, and drilling per foot in defined territory is some cheaper, while in wildcat development, the prices have not changed to any extent. The cost of operations, or the drilling and material costs in defined limits of the Central West fields, is considerably less for the reason that most old leases have power plants already installed and wells can be drilled and connected to power at a very low figure compared to any previous season for the past 10 years. In the old fields where leases have not been thoroughly drilled, some of the old wells that have been pumping for years have dropped to a point where it is not profitable to keep them on the power and then the casing and other material is pulled and all the good pipe used in the drilling of a fresh hole, which makes another big saving to leaseowners. Quite an area of outside territory has been added to all divisions of the Central West during the year in review, and a slight advance in the price of crude will bring about more active development in the early spring of the New Year.

The total completions for 1927 in the Central West Field, including the Lima Field of northwestern Ohio, Central Ohio, Indiana and Illinois, numbered 1,1112 wells, of which 485 were oil wells which yielded an initial production of 11,699 bbls.; 312 dry holes and 315 gas wells. When compared with 1926 figures this shows a decrease of 463 in completed wells, 11,769 bbls.; 47 dry holes, 14 gas wells and 402 less oil wells.

During the year 543 old producing wells were abandoned in the Lima, Indiana and Illinois fields against 479 for 1926, a decrease of 64.

Just enough test work has been done during the year to show the operators the way to go and there will be activity in the new spots as well as tests farther out from production in view of extending a wider scope of producing territory. In the Trenton Rock Field of northwestern Ohio, known as the Lima Field, the producing area covering a length northeast and southwest for a distance of approximately 120 miles, from Catawba Island on the northeast, in Ottawa County, to the Ohio-Indiana State line. Its width varies from 5 to 75 miles in width. The Indiana extension of the Trenton Rock also is many miles in length and it is considered the largest one-sand formation field anywhere in the country. This sand is also found productive in the eastern part of Illinois, near Martinsville, Clark County, where three producing sands were found above it, and is again found productive in the Waterloo Field of southwestern Illinois where the sand raises around 500 feet below the surface.

Lima Field

The Lima Field of northwestern Ohio which is a continuous one and having but one known producing sand, is still in for the drilling of many more wells within defined limits, although close to 50,000 holes have been drilled in the vast area. This field was discovered in 1884 by the drilling of a test in the City of Lima. Inside territory that was drilled in the earlier days of the development and since abandoned, is now regarded as most favorable for small wells, as new wells can and are being drilled in between the old abandoned locations. Often wells starting at 10 bbls. up to 60 bbls. are drilled in while others run from 2 up to 10 bbls., and very few dry holes are found. These wells gradually decline to a barrel or so daily. Salt water was also very troublesome in the Trenton sand.

Test Drilled to Granite

One of the most interesting wells of the year was that drilled by the Ohio Oil Co., on the William H. Bruns farm, on the oil map as the A. Black farm, Section 9, Woodville Township, Sandusky County, between Woodville and Genoa. The top of the Trenton sand was found in this test a 1,177 feet, and close to 800 feet of Trenton was penetrated, but the hole was drilled to 1,645 feet below the top of the Trenton to a total depth of 2,822 feet, which no doubt means to a point that lies between the upper and lower Cambrian formation. In drilling the last 100 feet the formation showed about 30 per cent granite, and was abandoned as there was no chance for production at a lower depth and the drilling of the granite was slow and tedious. This well was drilled near what is known as the Niagara Lime Ridge which comes to the surface near Genoa, while in Guernsey County, in Central Ohio, this formation has developed some excellent oil wells and some monster gas wells at close around 3,700 feet deep, showing the big dip to the southeast.

The first completion reported from the Lima Field in 1927 was that of the Oko Oil & Gas Co.'s No. 2 on the Mary Heilman farm, in the Colt Pool, in Section 29, Perrysburg Township, Wood County, where the Trenton was found at 1,244 feet and drilled into 49 feet, with an initial production of 15 bbls. The second well was that of the Ohio Oil Co., in No. 8 on the L. Rhoad farm, Section 22, Bloom Township, same county, where the Trenton was topped at 1,085 feet and penetrated 250 feet, with an initial production of 35 bbls.

The Lima Field for the period completed 262 wells, of which 211 were oil wells with an initial production of 2,973 bbls., 35 dry holes and 16 gas wells, while 419 old oil wells were abandoned. This is a decrease when compared with the 1926 period of 198 completions, 4,127 bbls. initial production one more dry hole and three more gas wells, while in abandoned wells there were 38 more in 1927 than in 1926.

Chronological Record

The first extension to the Lima Field for 1927 came in January, when Abbott and others' drilled in a gas well in the extreme northeastern part of Auglaize County, on the Fred Davidson farm, Section 12, Wayne Township, which came in at a depth of 1,492 feet. This test is in a space of undeveloped territory lying between the Roundhead Pool of Hardin County and the old Trenton Rock Field proper.

In February, penetrating the Trenton to a greater depth was the feature, with little results. Mann Stockewell drilled his No. 6 on the Frank Stratton farm, Section 10, Liberty Township, Wood County, to 1,512 feet, or 300 feet in the sand, the well doing but 2 bbls. In Section 24, same township, Mercer & Ray's No. 25 on the John Mercer farm, went 204 feet in the Trenton at a total depth of 1,400 feet and also got a 2-bbl. pumper. Near North Baltimore, in Henry Township, same county, Mays & Bushey's test on the Mays-Bushey farm, Section 35, went to 1,425 feet, or 282 feet in the sand, getting a 5-bbl. pumper.

In March, the Ohio Oil Co. penetrated the Trenton Rock to a depth of 460 feet, at a total depth of 1,621 feet at No. 47 on the E. Shannaberger farm, Section 7, Bloom Township, Wood County, close to Cygnet getting a 10-bbl. pumper, while in Liberty Township, same county, Walden & Evans only got a 3-bbl. pumper at 143 feet in the rock. It was during March that Murphy & Son drilled in a wildcat on the Dave Hunker farm, near the town of Cromer and also near Bettsville, northwest of Tiffin, in Section 21, Liberty Township, Seneca County, that resulted in a flowing well that produced 90 bbls. in 24 hours. The well was drilled 150 feet into the sand to a total depth of 1,519 feet and caused quite an excitment. At the start of 1928, this farm produced another well in No. 4 which outshows No. 1.

In April, the Denhoff Brothers attempted to find a deep pay in a well on the L. Wolfe farm, Section 1, Marion Township, Hancock County, and went 221 feet into the Trenton to a total depth of 1,521 feet, but salt water was encountered and the venture abandoned. The Ohio Oil Co.'s wildcat on the Louis Paur farm, Section 2, Laramie Township, Shelby County, was a 12-bbl. pumper at 180 feet in the sand at a total depth of 1,419 feet.

In May, Clark A. Browning drilled No. 24 on the Browning farm, better known as the L. D. Hatfield farm, Section 16, Bloom Township, Wood County, to 168 feet in the Trenton at a total depth of 1,198 feet, getting a 27-bbl. initial producer. This well is on the famous "Sucker-Rod Belt" that passes through parts of Wood, Hancock and Lucas Counties.

In June, Hulse & Kundtz drilled their No. 2 on the E. A. Judson farm, Section 3, Liberty Township, Wood County, 340 feet in the sand to a total depth of 1,573 feet, getting a dry hole. Murphy & Son drilled a well on the John Harrison farm, Section 21, Liberty Township, Seneca County, near Comer and Bettsville, north of Tiffin, where they brought in a 90-bbl. producer in March, but got a duster at 198 feet in the Trenton, at a total depth of 1,760 feet. W. F. Kurtz drilled a wildcat on the Baker farm, Section 18, Jackson Township, Hardin County, near the Forest Gas Field, the well doing 250,000 feet. Same party got a dry hole on the Christian Kraft farm, Section 19. The South Bend Oil Products Co. made a 2,000,000-foot gas strike at a second test on the Cooper property, Section 12, Ridge Township, Wyandot County.

Big Gasser in Old Field

In July, the Keck Oil Co.'s test on the Nancy L. Jones farm, Section 11, Bath Township, Allen County, northeast of Lima, topped Trenton at 1,325 feet and at 47 feet in the sand, showed an initial of 35 bbls. This well is a slight exten-

NEW POOL NEAR MUSKEGON AND BUSY YEAR IN SAGINAW FIELD

By Whit

Michigan had a great experience in oil development work in 1927, with a total of 264 completions, of which 44 were dry holes, 3 gas wells, 217 oil wells, with an initial production of 4,327 bbls. The heavy development was confined to the Saginaw Field, in Saginaw County, where 238 completions were reported, with 24 dry holes, 1 gas well and 213 oil wells, with an initial production of 4,290 bbls. In 15 outside counties, 26 completions, with oil in Muskegon, Shiawassee, Van Burn and Macomb Counties. When compared with the year 1926, this shows an increase in the State of 159 completions, 2,443 bbls. more initial production, 28 more dry holes and 3 more gas wells.

It is conservatively estimated that $3,000,000 has been invested in the Saginaw Field alone, with the average cost of $9,000 per well. The daily average production is estimated at from 1,000 to 1,250 bbls. The producing wells have settled down to where they will no doubt produce for a long period as the Berea sand, from which the bulk of the oil is found, is known for its staying qualities when the territory is conservatively drilled. Most of drilling has been done on town lots with the exception of the east side of the city, where Crowley and Carr drilled in a very good well and where more development work will be done during the new year. Wells were drilled close together in some areas of Saginaw in the earlier stages of the development, but later on a well in a block of land was the result and for that reason these wells will maintain their production better. Councilmen and city officials have done everything possible in the interest of the oil operators.

The Standard Oil Co. of Indiana purchased a large acreage north of Zilwaukee, a suburb of Saginaw, and north of the producing field, and has its refinery almost ready for the refining of Saginaw crude in gasoline, kerosene, fuel and furnace oil. The plant is said to have cost close to $250,000 and is equipped to handle 2,000 bbls. of crude daily. Two 20,000-bbl. tanks furnish the storage for oil purchased by this company from the Saginaw Field. The Standard is buying the crude produced by several of the largest producing companies in the field and has put in a gathering line from the field to its refining plant.

Oil from the field is also handled by the Sun Oil Co., which also has a pipe line over the producing part of the field. The average production of the wells can be estimated at close around 4 bbls. per well per day.

The bulk of the crude comes from the Berea sand found at an average depth of 1,815 feet, and from this formation comes most of the oil produced in the field. Some production has been found in the Saginaw sand, which is found around 2,300 feet. The Dundee lies close to 3,000 feet, but has not as yet proven a producer of any great value. Deep sand drilling was in vogue in the early months of 1926 and a number of wells were drilled to both the Saginaw and Dundee sands, but the Berea proved the most dependable. The big Saginaw sand gusher found on the Stelzreide farm, to the northern edge of the field, that started at 80 bbls., flowing, increased its production to around 475 bbls. a day. It was drilled in in March, and gradually declined until it was said to be doing 40 bbls. in June.

(Continued on Page 290)

sion to production and makes a number of locations look very favorable. W. F. Kurtz drilled a 5,000,000-foot gas well at a test on the Lawrence Deckleman farm, Section 18, Jackson Township, Hardin County, the gas being found in the Trenton and one of the largest gas producers found in that area which has been producing natural gas for something like 30 years. South Bend Producers Co. drilled a test on the Charles Kaley farm, Section 12, Ridge Township, Wyandot County. Top of sand at 1,377 feet and oil at 110 feet in the sand.

August failed to show anything of importance, but in September further additions were found in the overlooked territory northeast of Lime, in Bath Township, Allen County, where the Carman Oil Co.'s No. 1 W. B. Hall farm, Section 13, Bath Township, produced an initial of 20 bbls. at a total depth of 1,418 feet, and H. F. Kelly and others' No. 1 on the John Miller farm, Section 11, same township, had an initial production of 35 bbls. at a total depth of 1,362 feet, or 41 feet in the sand. W. W. Bolz & Co. drilled a test on the Charles E. Landis farm, Section 14, same township getting a 10-bbl. pumper at a depth of 1,330 feet, or 40 feet in the sand. In Washington Township, Auglaize County, the Real Oil Co.'s wildcat on the Ben Wierwelle farm, Section 29, struck top of Trenton at 1,182 feet and at 57 feet in the sand produced an initial of 35 bbls. Another purely wildcat well in the same county, was drilled by Arthur & Simpson, on the Charles Campbell farm, topping the Trenton at 1,452 feet and going 48 feet in the sand. This well is in the northeast corner of the county, in Wayne Township, and is more than a mile from other oil production.

In October, the Carman Oil Co. brought in a second test on the W. B. Hall farm, Section 13, Bath Township, Allen County, with an initial production of 50 bbls. Arthur & Simpson drilled another test in Wayne Township, Auglaize County on the Mary Rockwell farm, which had an initial production of 15 bbls., with the sand topped at 1,451 feet and oil at 48 feet in the sand.

New Spot in Mercer County

In November, a wildcat well was drilled by the Willshire Oil Co., on the James Ross farm, Section 5, Black Creek Township, Mercer County, getting an initial producer of 40 bbls. at a depth of 1,153 feet. In Bath Township, Allen County, W. W. Bolz drilled a test on the M. E. Roberts farm, Section 14, with an initial production of 25 bbls. In Auglaize County, W. E. Cook & Co.'s test on the W. V. Dubois farm, Section 13, Washington Township, and in advance of production, that showed an initial production of 26 bbls., at a depth of 1,288 feet. Arthur & Simpson's test on the Gossard farm, Wayne Township, same county and near the Hardin County line produced 18 bbls. initial at a depth of 1,505 feet. Charles Mertz drilled a test on the H. Miller farm, Section 2, Salem Township, same county, getting a producer for 15 bbls. initial, and some distance ahead of old production. One of the best wells found during the month in Auglaize County, was the Four Leaf Oil Co.'s No. 3 on the F. E. Zimmerman farm, Section 20, Logan Township, for 42 bbls. initial. In Washington Township, Sandusky County, between Gibsonburg and Elmore, the Lindy Oil Co.'s test on the John E. Boyer farm, Section 11, produced an initial of 11 bbls., at a depth of 1,340 feet.

In December, the Carman Oil Co. drilled its No. 1 on the Martha J. Powell farm, Section 13, Bath Township, Allen County, getting a 30-bbl. initial producer at 1,421 feet. The best of the late wells was the second test of the Real Oil Co., on the Ben Wierwelle farm, Section 2, Washington Township, Auglaize County, with an initial production of 50 bbls.

Wood County, as usual completed the most wells during the year, with Auglaize County second, there being but one more completion in Wood County. Mercer County was in third place with 31 completions, followed by Hancock County, with 26.

Central Ohio

The Central Ohio Field for 1927 failed to live up to its record in completed wells for 1926, falling short 79 completions, although the year was a prosperous one for the gas companies. Cuyahoga County, known as the Cleveland Field, took the lead in completed wells, the number being 98, the closest rival being Holmes County, with 84; Medina with 68 and Ashland County with 55, the other counties running from one to 31 completions. The best gas results were obtained to a large degree in the Cleveland Field of Cuyahoga County which was supposed to be drilled up some several years ago, but the late work was in pastures overlooked at that time. The best gas well reported from that field during the year showed a volume of 9,500,000 feet, which is a monster gas well for that area. Taking the Central Ohio Field as a whole, nearly every well drilled for gas is a test of acreage yet unexplored outside of the Cleveland area, as the large gas companies are testing out their vast acreage so as to know just where they stand in the way of gas for the lines that furnish many cities, villages and rural districts over the Buckeye State. The Guernsey County Field where oil and gas are found in the Niagara limestone at depths varying from 3,100 to 4,000 feet has developed quite an interest among the operators and some big gas producers have been uncovered in that formation, also some very good oil wells, but the theory is that this formation as a rule will not hold its production like a real oil and gas sand will. Niagara limestone outcrops about 13 miles southeast of Toledo, at the town of Genoa and dips very rapidly to the east and southeast. In the Genoa district the Niagara lime is found from 1,000 to 1,300 feet above the Trenton Rock, the oil and gas sand of the Lima Field. A new lead in oil prospects was developed just as the New Year came in that will give 1928 something to work on in Guernsey County, where the Birmingham Oil & Gas Co. found an 8-bbl producer of amber oil in No. 2 on the Elmer Redd farm, Section 20, Washington Township, the oil being found in the Second Berea pay, making a vast area of territory in that vicinity look good for this high gravity crude.

Oil was found in but 6 of the 17 counties of the Central Ohio Field during the 1927 period, the largest crude production coming from Holmes County, which had 84 completions, of which 15 were dry holes, 29 gas wells, and 40 oil wells, with an initial production of 2,283 bbls. This county gets its product in the Clinton lime and the wells are expensive on account of the depth in which this formation is found.

Annual Feature Wells

In January, an unusually good gas well was found by Hendricks and others' on the C. D. Swartz land, in Carthage Township, Athens County, with an open flow of 2,500,000 feet. The Logan Gas Co. found a 2,000,000-foot gas well at No. 1 E. A. Jent least, in Dover Township, Cuyahoga County, and another reported around 2,500,000 feet in No. 1 on the Winslow land, same township.

In February, the Ohio Fuel Gas Co. made a nice find in a test on the A. J. Beatty 127 acres, in Butler Township, Knox County, the well coming in at 60 bbls. initial production. This well passed through two sands ,the first being found at from 3,076 to 3,101 feet, where a break was found from 3,101 to 3,114 feet, when the second pay sand was found from 3,114 to 3,127 feet. Among the leading gas wells were the Ohio Fuel Gas Co.'s No. 1 J. and S. Pringle farm, in Columbia Township, Lorain County, estimated with an open flow of 1,750,000 feet; No. 1 of The Kemrow Co., on the William Sandles farm, Kilbuck Township, Holmes County, 4,000,000 feet; East Ohio Gas Co.'s test on the Nyhart farm, Monroe Township, Coshocton County, estimated at 5,000.000 feet; in the Cleveland Field, Dover Township, Cuyahoga County, the Preston Oil Co.'s No. 1 Dunford lease, 3,500,000 feet; Dempsey Brothers' No. 1 P. F. Decker, same township, 2,000,000 feet; Arthur & Simpson's No. 1 P. F. Harrison lease, and No. 1 on the Kinley lease, same field, 2,500,000 and 3,000,000 feet of gas.

New Gas Area

In March, a new gas area was found when Ringle and others' drilled a test in the northeast corner of the Ray Shaw 15 acres, Section 11, Clear Creek Township, Ashland County, with an open flow of 2,000,000 feet. Empire Gas & Fuel Co.'s test on the W. A. Shaw farm, Liverpool Township, Medina County, was a gas well good for 1,000,000 feet, while No. 1 on the C. L. White farm, Medina Township, same county, was equally as good at a depth of 3,560 feet. In Hardy Township, Holmes County, the East Ohio Gas Co.'s well on the Etta J. Nowells farm, was a 100-bbl. initial oil producer. Burton & Morgan struck a well good for 85 bbls. on the George Schuler lease, same township. In Kilbuck Township, Holmes County, East Ohio Gas Co.'s test on the F. H. and Laura E. Garver, showed 4,000,000 feet of gas from the Clinton sand. In Richland Township, same county, a wildcat drilled by the Reno Oil Co., on the Druzella Kyser 42 acres, Section 25, had an initial of 15 bbls., while a second well on the same farm drilled in a dry hole. Four new wells were drilled in Dover Township, Cuyahoga County. Logan Gas Co., No. 2 Elliott, 3,000,000 feet gas; Arthur & Simpson, No. 1 Gauge, 2,250,000 feet; Dempsey & Daugherty, No. 1 Kinkle, 1,750,000 feet, and Hulse & Kundtz' No. 11 F. Clausen, 1,750,000 feet. A wildcat drilled by the East Ohio Gas Co., on the J. B. Kirby lease, Section 25, Richfield Township, Summit County, measured 1,250,000 feet, opening what looks like a new gas field.

During April, The Kemrow Co. drilled a 125-bbl. oil well in a second venture on the Louis Coon lease, in Hardy Township, Holmes County, and in Kilbuck Township, same county, the same company struck a 2,000,000-foot gas well at a second test on the A. Fites farm.

During May, M. C. and G. K. Rogers drilled a test on the Paul Perto lease in Lafayette Township, Medina County, resulting in an open flow gas well with a volume of 3,500,000 feet. Warren Palmer and others' struck a 160-bbl. oil well on the George Schuler lease, in Hardy Township, Holmes County. A wildcat drilled by I. E. O'Hail on the Katherine Kaylor lease, in Knox Township, same county, measured a volume of 1.750,000 feet of gas. In Dover Township, Cuyahoga County, Arthur & Simpson's No. 2 on the C. L. Harrison lease, was a 4,000,000-foot gasser and No. 2 on the M. Harrison lease, 2,750,000 feet, and in Olmstead Township, same county, Hulse & Kundtz uncovered a test on the H. Harmon lease, for a volume of 1,250,000 feet.

In June, the Empire Gas & Fuel Co. brought in a 2,000,000-foot gas well in No. 3 on the Charles Pechhas lease, Lafayette Township, Medina County. The Kemrow Co.'s test on the Mel Purdy lease, in Richland Township, Holmes County, came in at 2,500,000 feet, while in Clear Creek Township, Ashland County, the Logan Gas Co. got a well good for 2,529,000 feet of gas at a test on the Charles Brown farm.

New Gas Area in Ashland

In July, a wildcat drilled on the Dan Dennis farm, Section 27, Green Township, Ashland County, brought an open flow reported at 2,000,000 feet, while No. 1 on the Lewis A. Bohn 80 acres, Section 12, Clear Creek Township, same county, produced a flow of 2,750,000 feet of gas. In Lorain County, Grafton Township, a 1,000,000-foot gas well was found by the Ohio Fuel Gas Co. on the W. A. Law lease, Lot 70. In Strongville Township, Cuyahoga County, Dillon & McFrederick's test on the George Zieg property,

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OLD LOWER SOUTHWEST HAD DULL YEAR OWING TO LOW CRUDE PRICE

By D. S. Wakenight
Staff Correspondent, Eastern Fields

All through the year operations in southwest Pennsylvania, West Virginia and southeastern Ohio, were at a low ebb, lower than for many decades. There were fewer wells completed and the new production much less than the preceding year. From the beginning to the close of the year there was scarcely a ripple of excitement in any section. Operations for the most part were confined to the old and well defined districts. There was very little wildcatting and what was done along that line failed to uncover a new pool of appreciable dimensions.

Some Good Wells Completed

In a few instances good producers were completed (mostly in the deep sand territory in southeast Ohio.) However, none of them were of the gusher kind. Of the wells completed and listed as oil producers the aggregate production amounted to 16,618 barrels, an average of a little more than 19 barrels per well. Southeastern Ohio completed more wells than West Virginia and the new production was more than three times as much. No district in West Virginia produced any large wells.

Market Was Too Low

Owing to the market being too low many of the larger operating companies declined to drill, except where it was necessary to protect leases or lease lines. The work completed was widely distributed throughout the old districts and consisted principally of odd locations that had been passed over during the early days of development work.

Gas Companies Fairly Busy

All through the year the gas companies were fairly active, but did not complete as many wells as the preceding year by 110. For a time there was a little flurry at Scenery Hill, West Bethlehem township, Green County, Pennsylvania. It was short lived and work had greatly declined by the close of the year. Like nearly all town-lot developments the wells declined rapidly. By the close of the year there were but eight wells drilling.

No Deep Tests

For the first time in a number of years no deep tests were drilled in any section of southwest Pennsylvania, West Virginia or southeast Ohio. In Union district, Harrison County, West Virginia, the Reserve Gas Co. went back to its deep test on the Chapman-Smith farm and made an effort to recover the casing, but failed and has abandoned the hole after having reached a depth of 6,824 feet. At the outset the Reserve company proposed to drill this well deeper than any other well that had ever been drilled. Like all previous deep tests when it comes to fishing at so great a depth it has proven a hopeless undertaking. In the years that passed scores of deep wells have had to be abandoned and tons of tools, casing and tubing lie buried deep below the earth's surface.

No Important Pipe Line Construction

Little or no pipe line work was started or completed in the southwest fields during the year. The Eureka Pipe Line Co. extended a short gathering line into Mingo County to take care of a small amount of new production.

Largest pipe line transaction was that of the Pure Oil Co. when it sold its gathering and trunk lines to the National Transit Co., the South West Pipe Line Co. and the Eureka Pipe Line Co. and the Macksburg division of the Buckeye Pipe Line Co. in southeastern Ohio. The deal in the aggregate amounted to $1,985,000.

Another deal of small magnitude took place when the South West Pennsylvania Pipe Line Co. took over the Pittsburgh Pipe Line Co., a gathering system in

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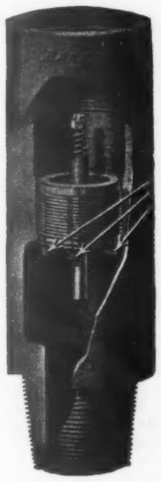

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Western Kentucky Enjoyed Busy Year

Ohio County Pools Developed Exceptionally Good Wells and Estill and Barren Counties Showed Much Activity

By Whit
Staff Correspondent, Kentucky-Tennessee

While crude prices were less than for a long period, the operators in Kentucky during 1927 can feel satisfied that they have experienced an exceptionally good season when compared with some of the other producing fields of the country. In the eastern division of the State little was done in the way of drilling new wells and operators lay low during the entire season, taking their production from that division from properties that had paid out their initial cost more than once. The grand total of completions for 1927 in the eastern Kentucky division was 323 wells, of which 220 were oil wells with an initial production of 2,334 bbls., 73 dry holes and 30 gas wells, from a territory running from the western portion of Wayne County to the division line between Kentucky and West Virginia. In the western division for the year there were 834 completions, of which 567 were producers with an initial of 28,280 bbls., 257 dry holes and 10 gas wells, making the total new wells for the year in the Blue Grass State 1,157, of which 787 were oil wells with a total of 30,614 bbls. in initial production, 330 dry holes and 40 gas wells. Compared with the figures for 1926 of the entire State, this shows 120 fewer completions, 162 fewer producers, 15,796 bbls. more production, 50 more dry holes and 8 less gas wells.

The activity was centered largely in Ohio and Daviess Counties, with Ohio County getting the bulk of the work done and the greater part of the big production. Ohio County alone had 338 wells completed, 91 of which were dry and 4 were gas wells, leaving 243 new producing wells with an initial production of 22,247 bbls. Barren County held second place, with 262 completions, 181 of which were producers with an initial of 2,234 bbls., 78 dry holes and 3 gas wells. Daviess County had 49 completions, 32 producers with an initial of 971 bbls., and 17 dry holes, but just at the close of the year, although not yet connected up, some fine producers were drilled, among which was the Hayden well near Utica, in the southern part of the county, estimated at better than 200 bbls., and to the south a few miles in the northern part of McLean County, the Dimmick well, good for 60 to 80 bbls. initial. In western Ohio County several tests were making excellent showings, which means that a great amount of work will be done during the early spring season, or as soon as the roads are in shape so that material can be moved.

The close of the year in the western division of Kentucky shows more leasing activities and sale of royalty interests than ever before experienced in the State. This work is confined to Ohio, Daviess and McLean Counties and in many instances a one-half of the royalty is sold by the land owner for more than the entire land would sell for any other purpose, or far more than the owner paid for the farms. The largest price paid for a one-half royalty interest, one-sixteenth of the output of wells on the W. G. Hayden 168 acres, was bought by Fred Estes, oil operator of Greenville, Ohio, for $25,000, and turned right over to G. E. Townsend of Winchester, Ky., for $50,000, a profit in a few days of $25,000. This lease is attractive, owing to the way the one well on it is showing up, while Percy Jolly and others' well on the Tom Stevens lease at Browns Valley, some distance away and also in Daviess County, makes it look as though an extensive pool would be found upon the structure. A good well on the Gilbert Jolly lease west of Buford, in Ohio County; a fair-sized producer on the Vincent J. Steele chicken farm, at Buford, west of the Ambrose Pool, and some 100-bbl. initial wells at a depth around 500 feet, midway between the pool and the Sunnydale Field, also make the adjacent territory look very promising. A completion just before the close of the year to the south about 3 miles from the town of Taffy, found 35 feet of pay sand and was reported good for about 150 bbls.

Most Important Wildcat

The most important wildcat of all at this time is being drilled by the Ohio Oil Co. on the old Baxter farm, about one-half mile southeast of Central City, in Muhlenburg County, and along the Rockport Road. This property is known as the Central Land Co., and good results are expected as geologists have passed encouragingly on the territory.

Over in Union County, southwest of Corydon, F. E. Black and others got what was reported to show for a 10-bbl. well on the R. H. O'Daniel land, and started a second test, with two additional tests under way southeast and southwest of the O'Daniel well. Much leasing is being done in Union County as well as in Henderson and Webster Counties, which lie directly east of Union County and between Union and Daviess and McLean Counties. Hopkins and Butler Counties to the west and southwest of the Daviess County production is also being looked over by scouts and geologists.

The county clerk's office in Owensboro, the county seat of Daviess County, reports that during 1927 there were 702 new leases for oil and gas put on record as well as 58 old leases transferred to other parties than those specified in the original. Only 292 leases were recorded during 1926.

Dull in Eastern Counties

Very little development of note was noticeable in the eastern division of Kentucky during the year, the first well of consequence was a gas well drilled in January by the Petroleum Exploration Co. on the S. A. Caudill farm, in Owsley County, with an initial volume of 3,196,580 feet. In District No. 31, Johnson-Magoffin Counties, Hupp, Duff & Co.'s Nos. 4 and 5 B. F. Whitt No. 1 farm showed 50 and 75 bbls., while No. 4 on the B. F. Whitt No. 2 farm had an initial of 50 bbls. In February the Monroe Oil Co.'s No. 1 J. F. Brewer farm, in the Island Creek Field of Owsley County, showed an initial of 175 bbls., but went down quite rapidly in its production. Two 50-bbl. wells were drilled on the B. F. Whit farms, in Johnson-Magoffin Counties. Carroll & Gray's test on the Elmer Osborne farm, near Bridgeville, in Bracken County, near the Ohio River, reported at 5 bbls. initial. In March, in District 3, Wayne County, John Dillon's No. 1 Eli Phipp farm, showed 35 bbls. initial, the largest producer for Wayne County for a number of years. In April, Hupp, Duff & Co.'s No. 1 Clay Hammond heirs farm, District 31, Johnson-Magoffin Counties, had an initial of 25 bbls. In May, the Monroe Oil Co.'s No. 2 J. F. Brewer farm, Island Creek Field of Owsley County, reported with an initial of 100 bbls. at 690 feet. Near the mouth of Crane Creek and in a northwestern extension of the gas belt in Owsley County, the Petroleum Exploration Co.'s No. 1 W. M. Bowman farm did 1,250,000 feet of gas, while No. 1 on the Margaret Moore lease, same area, showed 1,117,000 feet, both completed in June. In August, the Big Injun Oil Co., formerly reported the Monroe Oil Co., drilled in No. 3 on the J. F. Brewer farm, in the Island Creek Field of Owsley County, and reported as producing an initial of 250 bbls. In November, C. R. Dulin's wildcat near Burning Springs, in Clay County, reported at 1,000,000 feet of gas. In December, Petroleum Exploration Co. got a good gas well on the Crawford heirs property in the Crane Creek area of Clay County.

Western Kentucky

In January, the Stohr Brothers Oil Corp. drilled a 60-bbl. initial producer in No. 3 on the McGuire lease in Bar-

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YEAR OF DISAPPOINTMENTS IN EAST CENTRAL TEXAS FIELDS

By Special Correspondent

While the East Central Texas pools produced 13,162,026 bbls. of crude oil in 1927, the fact that only 14 new oil wells were completed in the year with a total initial production of 4,856 bbls. was responsible for the very large drop in production of the area during the year.

In 1926 East Central Texas produced 21,287,923 bbls. Last year production dropped off 38 per cent.

One new pool was opened during the year, but it proved of little consequence. The discovery of the Nigger Creek Pool, west of Mexia, was followed by an exploration of the general Mexia district in search of additional faulted structures, and the Reiter-Foster Corp., Lewis & Moutray drilled a test on one faulted structure which proved a failure, whereupon they moved over to the Cedar Creek structure and on the Lewis farm drilled a well which came in the latter days of August a 125-bbl. producer from Woodbine sand reported at 2,874 feet. The well also showed a 9,000,000-foot gas flow in its flush stage. This started a drilling campaign nearby which resulted in 12 oil wells up to the close of the year. The area was soon defined and proved to be small and none of the wells was of large production. At the close of the year the production was 1,230 bbls. per day or an average of 102½ bbls. per well. In the four months the pool produced 94,842 bbls.

Cherokee's Sensation

In the first half of the year Cherokee County furnished a short lived sensation. The Humble Oil & Refining Co. drilled a well on the Elliott & Clarke property in the Boggy Creek area, 14 miles west of the town of Jacksonville, on an inland salt dome structure. Sand was found at a depth of 3,847 feet. The well started off at a rate estimated all the way from 8,000 to 12,000 bbls. per day, but was quickly shut in for lack of storage or pipe line facilities. When opened, it proved to be largely a salt water well and never produced more than 200 bbls. a day. This discovery was followed by a tremendous campaign of leasing in block in which most of the big companies operating in the Texas fields took part. Seismograph crews "shot" county after county surrounding Cherokee, and a number of wells were drilled. At least two of these found salt domes, but no other well has found an oil sand. This territory will come in for a thorough drilling campaign some time in the future when conditions warrant the further search for oil in that very uncertain territory.

Outside of Limestone and Cherokee Counties nothing looking like an oil well was brought in in the course of the year. The dry and abandoned list includes 10 wells in Anderson County; 1 each in Ellis, Falls and Hunt; 2 each in Smith, Fannin and Franklin; 8 in Cherokee, 4 each in Freestone and Henderson, and 20 in Limestone County. Close to 80 per cent of the completions in the territory last year were dry.

Record of the Pools

The Mexia fault zone has proved one of the greatest producers of oil in the

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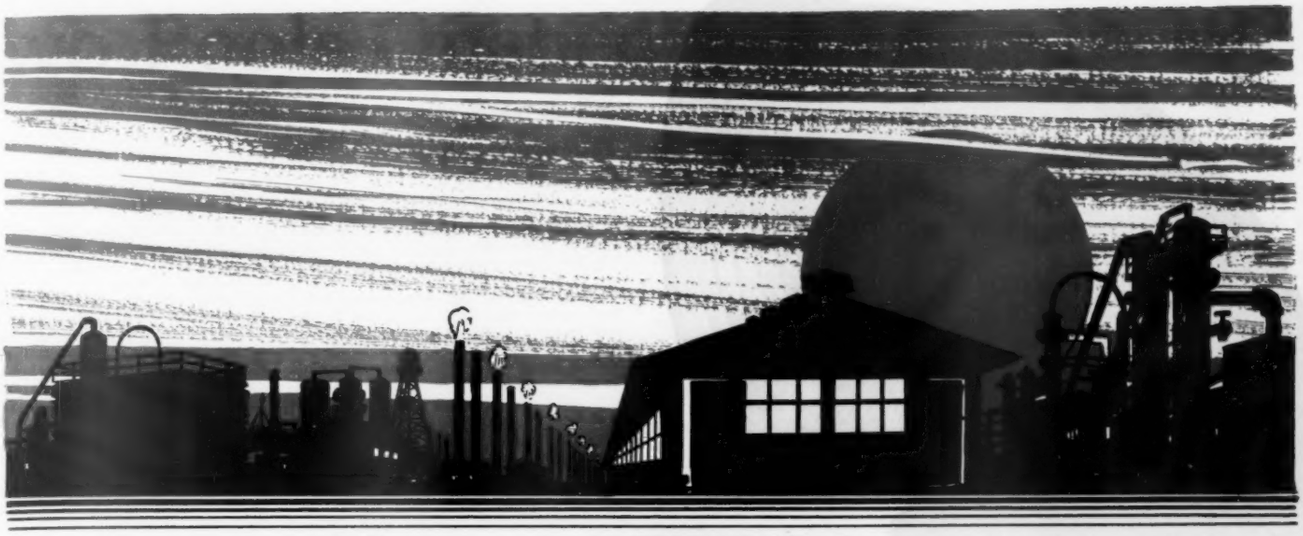
East Central Texas

Daily Average and Monthly Production in 1927

		January	February	March	April	May	June	6 months	July	August	September	October	November	December	Total
Powell—Corsicana	Dy. Av.	23,032	22,808	19,857	19,760	16,405	16,418	.....	15,558	15,212	13,979	15,308	14,231	13,207	.....
	Month	713,713	638,624	615,667	592,800	508,555	492,540	3,564,899	482,298	471,572	419,370	474,548	426,920	409,417	6,249,034
Mexia	Dy. Av.	12,999	15,913	17,141	13,552	10,613	10,400	.....	10,306	9,639	9,234	8,987	8,565	8,689	.....
	Month	402,969	445,564	531,371	406,560	329,002	312,000	2,427,467	319,486	298,809	276,720	278,597	256,950	269,359	4,127,388
Nigger Creek	Dy. Av.	5,762	5,104	2,943	3,266	2,472	2,862	.....	2,079	1,826	1,472	1,345	1,156	1,344	.....
	Month	178,622	142,912	122,233	97,980	76,632	85,860	704,239	64,449	56,606	44,160	41,695	34,680	41,664	987,491
Currie	Dy. Av.	824	803	791	676	723	693	.....	709	662	633	589	578	551	.....
	Month	25,544	22,484	24,521	20,280	22	20,790	136,032	21,979	20,522	18,990	18,259	17,340	17,081	250,203
Richland	Dy. Av.	1,120	1,140	1,023	994	885	861	.....	773	783	699	742	694	669	.....
	Month	35,030	31,920	31,713	29,820	27,559	25,830	181,872	23,963	24,273	20,970	23,033	20,820	20,739	315,670
Wortham	Dy. Av.	3,990	4,163	3,679	3,575	3,286	3,150	.....	2,905	2,867	2,692	2,466	2,306	2,349	.....
	Month	123,690	116,704	114,049	107,250	101,866	95,700	659,259	90,056	88,877	80,760	76,446	69,180	72,819	1,137,396
Cedar Creek	Dy. Av.	.....	.....	.....	.....	.....	.....	.....	.....	.....	425	557	1,019	1,105	.....
	Month	.....	.....	.....	.....	.....	.....	.....	.....	.....	12,750	17,267	30,570	34,255	94,842
Total 1927	Dy. Av.	47,728	49,936	46,534	41,823	34,388	34,424	42,396	32,230	30,989	29,124	29,995	28,549	27,914	36,060
	Month	1,479,568	1,398,208	1,442,554	1,254,690	1,066,028	1,032,720	7,673,768	1,002,230	960,659	873,720	929,845	856,470	865,334	13,162,026
Total 1926	....	1,928,851	1,759,648	1,832,614	1,763,970	1,703,853	1,657,780	10,536,616	1,662,427	2,198,365	1,865,970	1,731,598	1,558,890	1,734,047	21,287,923
Total 1925	.....	6,376,886	4,518,416	4,888,917	4,111,590	3,868,375	3,379,740	27,135,924	3,103,286	2,887,433	2,568,480	2,454,549	2,194,920	2,172,336	42,519,917
Total 1924	.....	4,177,891	4,241,507	5,071,307	4,639,510	4,282,659	3,918,590	26,324,224	4,024,193	3,971,984	3,887,090	3,898,172	3,440,450	3,917,393	49,472,507
Total 1923	.....	2,010,703	1,780,485	1,996,015	1,888,891	1,994,871	2,309,333	11,758,576	5,854,199	5,431,983	6,733,020	9,090,616	9,646,597	4,362,302	50,317,293



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Two Pools Opened in Kansas in 1927

Oxford Townsite Pool in Sumner County and Lost Springs, Marion County. Unusual Activity in Miami County

By J. L. Dwyer
Staff Correspondent, Kansas Fields

All during the past year there was a scarcity of interesting news from the Kansas fields outside the discovery of the Oxford and Lost Springs Pools, and now that the year's results may be analyzed, it is not difficult to ascertain the reason—the drill was not very active in Kansas last year. Only once during the past seven years has Kansas had fewer wells drilled than in 1927 when 1,333 wells were finished. It was during 1924, (following a year which witnessed unfavorable conditions in the industry) that only 1,125 wells were drilled, and the years since 1921 show an activity which ranges from this figure to 2,338 wells, the number drilled during 1926.

The general industrial situation in oil was primarily responsible for the limitation of activity in the Kansas fields, and they differed in no manner from the majority of other operations of the oil country. There was a dearth of promotion wildcat wells drilled, and any limitation of wildcatting programs, is bound to be reflected in a corresponding limitation of new producing territory. This holds good for all potential oil fields, for the wildcat rig must necessarily precede the pipe lines and other adjuncts of production.

Companies operating in the Mid-Continent Field have in former times been liberal in their purchases of acreage close to drilling wells in the Kansas fields, but 1927 saw them holding the purse strings tightly, and declining to purchase against the drilling of a well; in fact they were unanimous in discouraging drilling, and when possible, paid renewal and rental money rather than start the drill to work.

The net result of this program (which was carried out by the majority of companies) may be seen in the 1,333 wells drilled in Kansas last year. Like Oklahoma, what drilling was done, showed an intensely concentrated activity which was confined to the Oxford townsite and Churchill Pools of Sumner County, and the "post-hole" fields of Miami County where oil is found almost from the grass roots down. These two parts of the State enjoyed the most interesting activity, although the Golden Lane Pools of Greenwood County are credited with the largest number of wells actually drilled.

Increase in New Production

From a point of new production, the record of 1927 is not startling, although it surpasses the performances of many previous years in the State. The 1,333 wells completed last year accounted for 98,253 bbls. of new production based upon the first 24 hours output. While this amount of initial output is just about half of the amount which was made during 1926, it compares rather favorably with the years prior to 1925 and the averages per well show that what drilling was done in Kansas last year was probably profitable in spite of the low crude price which marked the year.

Greenwood Led in Activity

In point of actual drilling operations, Greenwood County still leads all sections of the State, and last year there were 325 wells completed in that county. These wells had an aggregate initial output of 19,206 bbls., while Sumner County with 116 completed wells made a first 24 hours production record of 40,048 bbls.

This statement presents an illustration of the change which has been witnessed in Greenwood, which for many years has been the most active and until this year, the most interesting part of the State. In previous years Greenwood with its series of shoestring pools, was the Mecca of Kansas oil men. The Bartlesville sand production found at a depth around 2,400 feet was a stratum which furnished wells having a limited initial yield, but a very gradual decline curve. It has often been remarked that the wells of this region have a producing life which is comparable with any other part of the Mid-Continent Field, and naturally the Golden Lane Pools have their own peculiarities. When the Bartlesville sand in that territory is penetrated and a hole full of oil found, the well is estimated good for 200 bbls. on the pump; a condition uncommon to the ordinary run of pools in the Mid-Continent. Flowing wells are rare, and have a tendency to stop their flows at an early period, but when subjected to the ordinary method

KANSAS

Daily Average and Monthly Production in 1927

	January	February	March	April	May	June	July	August	September	October	November	December	Total
MARION COUNTY—													
Florence—													
Daily average	1,013	915	844	843	800	782	732	745	748	694	656	637	
Month	31,403	25,620	26,164	25,290	24,800	23,460	22,692	23,095	22,440	21,514	19,680	19,747	285,905
Peabody—													
Daily average	1,448	1,574	1,473	1,431	1,406	1,379	1,428	1,346	1,352	1,348	1,337	1,317	
Month	44,888	44,072	45,663	42,930	43,586	41,370	44,578	41,726	40,560	41,788	40,110	40,827	512,098
Covert-Sellers—													
Daily average	833	843	816	790	771	760	774	761	760	733	734	729	
Month	25,823	23,604	25,296	23,700	23,901	22,800	23,994	23,591	22,800	22,723	22,020	22,599	282,851
Lost Springs—													
Daily average	.....	.....	.....	375	252	608	200	200	200	199	200	196	
Month	.....	.....	.....	11,250	7,812	18,240	6,200	6,200	6,000	6,169	6,000	6,076	73,947
BUTLER COUNTY—													
Elbing—													
Daily average	2,550	2,557	2,345	2,638	2,619	2,563	2,507	2,460	2,427	2,410	2,335	2,284	
Month	79,050	71,596	72,695	79,140	81,189	76,890	77,717	76,260	72,810	74,710	70,050	70,804	902,911
Potwin—													
Daily average	399	379	367	462	393	386	399	400	379	395	376	370	
Month	12,369	10,612	11,377	13,860	12,183	11,580	12,369	12,400	11,370	12,245	11,280	11,470	143,115
Cameron-Robinson—													
Daily average	587	628	604	638	593	594	547	616	587	609	571	561	
Month	18,197	17,584	18,724	19,140	18,383	17,820	16,957	19,096	17,610	18,879	17,130	17,391	216,911
Wilson-Dunkle—													
Daily average	1,572	1,479	1,594	1,561	1,541	1,502	1,492	1,448	1,402	1,483	1,612	1,573	
Month	48,732	41,412	49,414	46,830	47,771	45,060	46,252	44,888	42,060	45,973	48,360	48,763	555,515
Towanda—													
Daily average	2,519	2,504	2,701	2,706	2,703	2,691	2,653	2,655	2,644	2,516	2,429	2,388	
Month	78,089	70,112	83,731	81,180	83,793	80,730	82,398	82,305	79,320	77,996	72,870	74,028	946,552
Fox-Bush—													
Daily average	1,322	1,325	1,329	1,285	1,287	1,249	1,264	1,242	1,215	1,237	1,171	1,163	
Month	40,982	37,100	41,199	38,550	39,897	37,470	39,184	38,502	36,450	38,347	35,130	36,053	458,864
Nuttle-Koogler—													
Daily average	2,158	2,121	2,064	2,011	1,971	1,943	1,928	1,950	1,836	1,872	1,807	1,809	
Month	66,898	59,388	63,984	60,330	61,101	58,290	59,768	60,450	55,080	58,032	54,210	56,079	713,610
Eldorado—													
Daily average	7,028	6,924	7,776	7,947	7,857	7,811	7,705	7,801	7,505	7,677	7,324	7,288	
Month	217,868	193,872	241,056	238,410	243,567	234,330	238,855	241,831	225,150	237,987	220,020	225,928	2,758,874
Smock—													
Daily average	306	231	235	232	223	224	232	224	222	211	205	201	
Month	9,486	6,468	7,285	6,960	6,913	6,720	7,192	6,944	6,660	6,541	6,150	6,231	83,550
Leon-Weaver—													
Daily average	2,246	2,322	2,402	1,285	3,229	2,416	3,506	3,763	3,644	3,475	3,413	3,389	
Month	69,626	65,016	74,462	38,550	100,099	72,480	108,686	116,653	109,320	107,725	102,390	105,059	1,070,066
North Augusta—													
Daily average	1,449	1,341	1,441	1,706	1,328	1,314	1,227	1,194	1,182	1,075	1,028	1,010	
Month	44,919	37,548	44,671	51,180	41,168	39,420	38,347	37,014	35,460	33,325	30,840	31,310	493,702
South Augusta—													
Daily average	1,583	1,631	1,832	1,878	1,869	1,843	1,801	1,760	1,720	1,585	1,571	1,563	
Month	49,073	45,668	56,823	56,340	57,939	55,290	55,831	54,560	51,600	49,135	47,130	48,453	627,842
Sluss—													
Daily average	422	402	347	352	360	354	354	347	361	340	348	345	
Month	13,082	11,284	10,767	10,560	11,160	10,620	10,974	10,767	10,830	10,540	10,440	10,695	131,699
Benton—													
Daily average	.....	70	125	73	64	63	70	66	58	50	45	45	
Month	.....	1,960	3,875	2,190	1,984	1,890	2,170	2,046	1,740	1,550	1,350	1,395	22,510
Douglas—													
Daily average	133	133	133	132	132	131	131	127	127	127	127	126	
Month	4,128	3,724	4,123	3,960	4,092	3,930	4,061	3,937	3,810	3,937	3,810	3,875	47,382
Keighly—													
Daily average	3,571	3,270	3,096	2,858	2,939	2,902	2,294	2,256	2,021	1,851	1,769	1,741	
Month	110,701	91,560	95,976	85,740	91,109	87,060	71,114	69,936	60,630	57,381	53,070	53,971	928,548
Eastern Butler—													
Daily average	1,150	1,185	1,141	1,126	1,234	1,196	1,248	1,228	1,091	1,059	1,017	1,001	
Month	35,650	33,180	35,371	34,080	38,254	35,880	38,688	38,068	32,730	32,829	30,510	31,031	416,271
GREENWOOD & WOODSON COUNTIES—													
Sallyards—													
Daily average	1,409	1,507	1,437	1,495	1,397	1,383	1,398	1,381	1,284	1,280	1,255	1,264	
Month	43,679	42,196	44,547	44,850	43,307	41,490	43,338	42,811	37,020	39,680	37,650	42,284	502,852
Teeter-Pixley-Scott—													
Daily average	13,984	13,257	12,582	11,913	11,024	10,606	10,516	10,257	9,632	9,264	8,866	8,394	
Month	433,504	371,196	390,042	357,390	341,744	318,180	325,996	317,967	288,960	287,184	265,980	260,214	3,958,357
Virgil—													
Daily average	4,431	4,406	4,316	4,383	4,222	4,189	4,520	5,267	5,606	5,647	6,358	6,494	
Month	137,361	123,368	133,796	131,490	130,882	125,670	140,120	163,267	168,180	175,057	190,740	201,314	1,820,945
Thrall-Burkett—													
Daily average	2,939	2,979	2,909	2,714	2,635	2,619	2,485	2,546	2,393	2,366	2,268	2,021	
Month	91,109	83,412	90,179	81,420	81,685	78,570	77,035	78,926	71,790	73,346	68,040	62,651	938,163
Sealy—													
Daily average	13,531	13,454	12,389	11,691	11,453	10,990	10,260	9,756	9,542	9,383	8,743	8,152	
Month	419,461	376,712	384,059	350,730	355,043	329,709	318,060	302,436	295,260	290,873	262,290	252,712	3,937,336
Polhamus—													
Daily average	1,577	1,583	1,497	1,572	1,514	1,506	1,420	1,340	1,301	1,282	1,221	1,273	
Month	48,887	44,324	46,407	47,160	46,934	45,180	44,020	41,540	39,030	39,773	36,630	39,463	519,348
Miscellaneous—													
Daily average	4,187	3,854	3,501	2,826	2,668	2,557	2,334	2,441	2,277	2,167	1,960	1,754	
Month	129,797	107,912	108,531	84,780	82,708	76,710	72,354	75,671	68,310	67,177	58,800	54,374	987,124

(Table Continued on Page 166)

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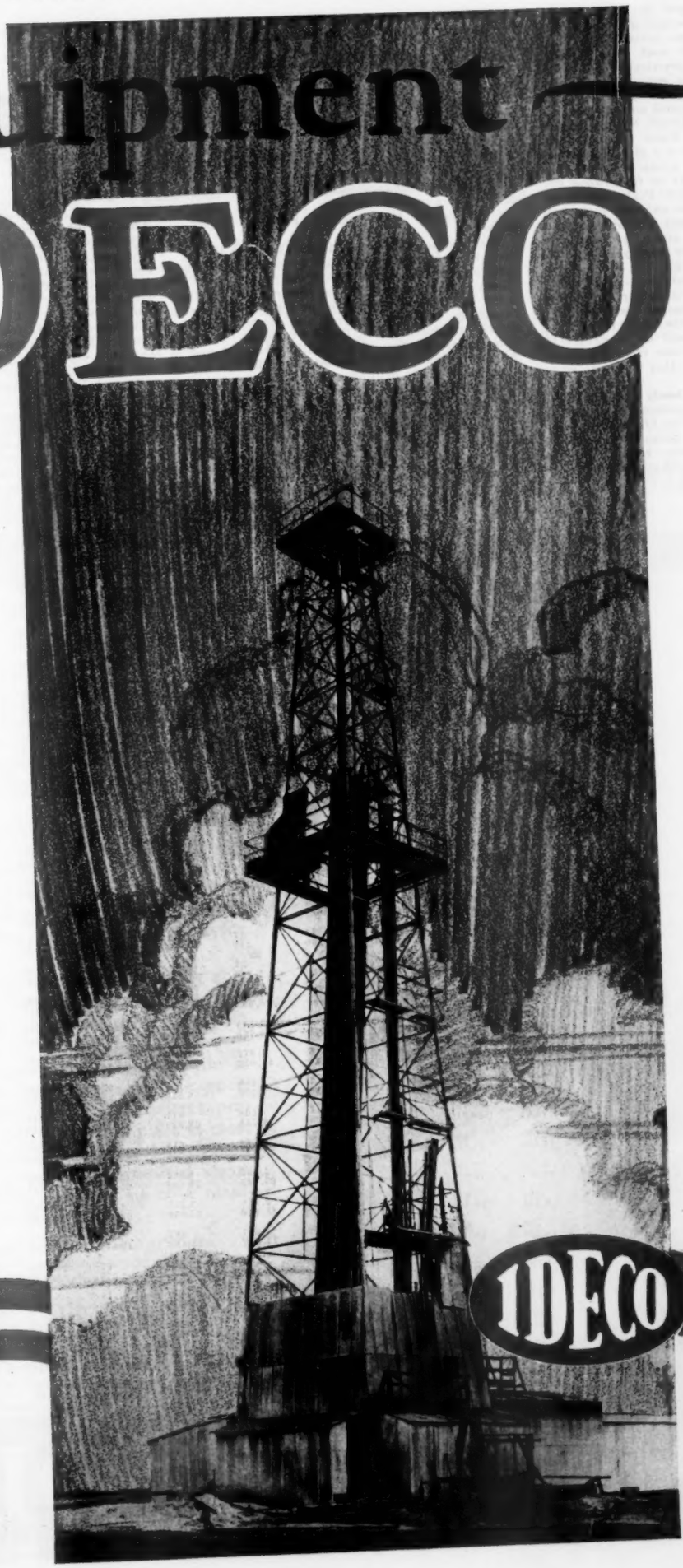


of pumping employed in the pools, they respond with an output quite similar to wells which have no initial flow.

The past year's work in Greenwood County has been practically confined to sporadic efforts to connect up various producing sectors in the Golden Lane region. The most general activity was witnessed around the Thrall, Sealey, Burkett, Wick and Fromm Pools running northeast and southwest on a plane immediately southeast of the group of pools which had unusual activity in Greenwood during 1926 when Teeter-Pixley Scott and Browning Pools were enjoying their drill-in gcampaign. About the only activity which the latter group of pools experienced during the past year was the drilling of inside wells.

Until another producing unit of pools shall be found, it is rather likely that Greenwood will be passed over, and other regions will receive the major play. Wildcat wells in this part of the State no longer seem as desirable from a point of protection acreage as they were two years ago.

Wells Too Closely Spaced

The air-gas lift system of producing oil was tried out in the Oxford Townsite Pool, and after a series of tests was abandoned. The only reason for the failure of the lift in that pool is in the fact that the very close spacing of the wells tends to limit the proper functioning of the lift, and poor results have caused the equipment to be discarded in favor of the pumping method and the swab. The lift has worked successfully in other regions of the State where good production has been handled from sand conditions similar to those encountered at Oxford, and the only remaining theory is that the close spacing of the wells, resulting in a limited drainage area for each air-gas lift has hampered this type of operation. It is the only failure of the lift in the Mid-Continent Field to date.

The post-hole fields of Miami County have been extremely difficult to report with any degree of accuracy and continuity. In that part of the State adjacent to Paola the land is principally owned by resident farmers, and when shallow production was found at depth from 300 to 700 feet, a few drilling machines were hastily purchased, and the work began. The drilling was to a large extent financed by farmers and land owners of the county, with the result that a machine was moved in, the well was drilled in a few days, and before a week had passed, the oil was into the tank.

The only accurate manner in which records of this work can be kept is by the monthly reports which summarize the performance of the county. In Miami County last year, there were 138 wells drilled, and the shallow sands gave an initial production of 3,825 bbls. for this activity. The relatively low cost of drilling and equipping the wells has to a large extent offset the exceedingly small yield per well, and while the majority of operations are confined to a very narrow strip some three or four locations wide, the productive parts of the county have established very profitable results.

Lost Springs Pool

The Lost Springs district of Marion County was almost the only important wildcat strike of the year in Kansas. On May 14th, the Phillips Petroleum Co., together with Harwood & Winters, opened a pool in Section 21-17-4. The discovery well flowed 80 bbls. for a time, and then quit. The production was found in chat at a depth of 2,376-2,394 feet. It has since yielded its output by pump and swab. Only a few wells were drilled in this region on account of unfavorable price conditions, but it is believed that when a better price is imminent, this territory will furnish good production. The Phillips Petroleum Co. has recently purchased the interests of Harwood & Winters and others and is now in possession of about 1,200 acres of leases surrounding the discovery well. There are now five wells with a potential production of 400 bbls. daily. Lost Springs will very likely be heard from during the year 1928.

Rooks County in the far northern part of the State presented the most interesting wildcat strike of the year in Kansas when the Vickers Petroleum Co. and others' of Wichita, Kans., opened a pool by finding production in the Oswalt lime in a wildcat well in Section 12-9-16w. This well was completed June 9th, and occasioned an unusual performance by the owners, for after the production was found, a core drill outfit was brought into play, and the remaining parts of the block were tested out. The general order of procedure reverses this work. The discovery well tapped the Oswalt formation from 3,228-3-263 feet, and has been pumping from 50 to 55 bbls. of oil daily. It is located on a block of 31,000 acres owned by the Vickers interests and their partners, and this includes an unusually large parcel of acreage. It gave impetus to an extensive leasing campaign in that region, and will probably be the cause of some little drilling this year.

Oxford Townsite Pool

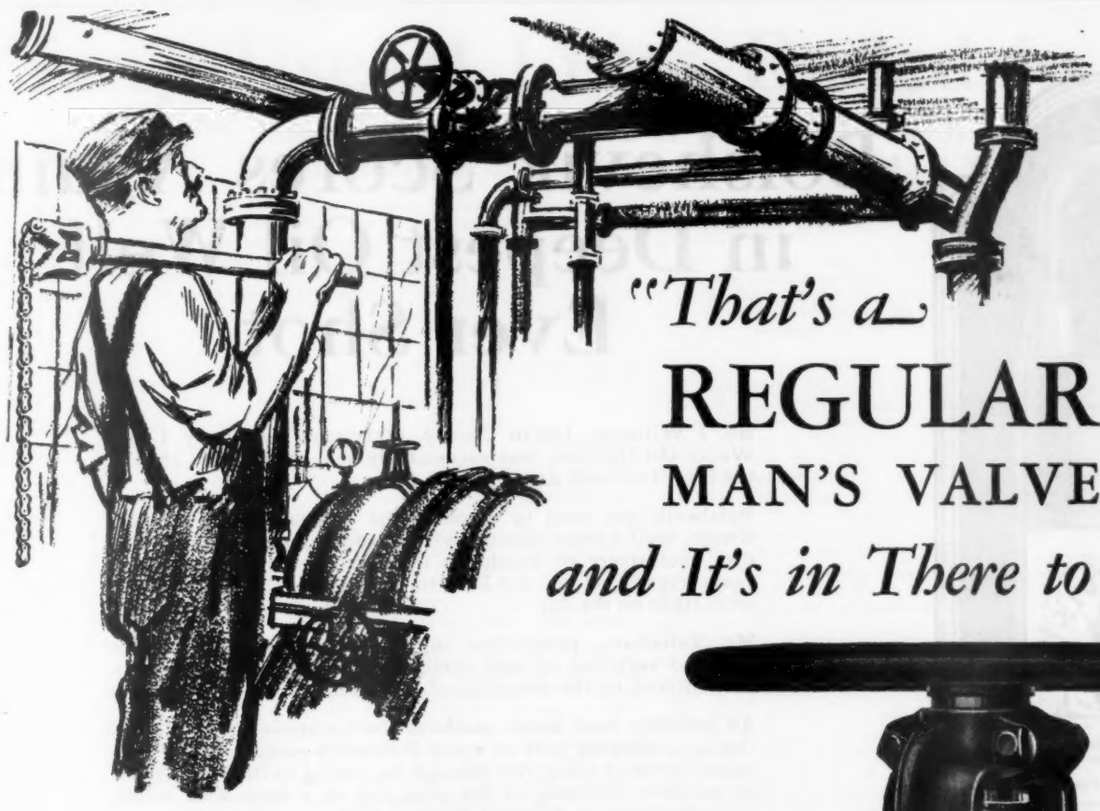
The Oxford Townsite and Churchill

(Continued on Page 174)

KANSAS

Daily Average and Monthly Production in 1927

	January	February	March	April	May	June	July	August	September	October	November	December	Total
COWLEY COUNTY—													
Rainbow Bend—													
Daily average	2,862	2,515	2,360	2,099	2,278	2,144	2,151	2,097	2,058	1,993	1,944	1,901	
Month	88,722	70,420	73,160	62,970	70,618	64,320	66,681	65,007	61,740	61,783	58,320	58,931	802,672
Slick—													
Daily average	1,342	1,415	1,287	1,255	1,313	1,262	1,202	1,011	987	931	904	897	
Month	41,602	39,620	39,897	37,650	40,703	37,860	37,262	31,341	29,610	28,861	27,120	27,807	419,331
Graham—													
Daily average	946	769	688	590	582	573	581	565	553	549	582	563	
Month	29,326	21,532	21,328	17,700	18,042	17,190	18,011	17,515	16,590	17,019	17,490	17,453	229,196
Rock—													
Daily average	298	285	351	261	272	269	254	260	239	241	224	218	
Month	9,238	7,980	10,881	7,830	8,432	8,070	7,874	8,060	7,170	7,471	6,720	6,758	96,484
Clark—													
Daily average	264	216	241	205	226	228	204	219	218	181	200	194	
Month	8,184	6,048	7,471	6,150	7,006	6,840	6,324	6,789	6,540	5,611	6,000	6,014	78,977
Eastman—													
Daily average	741	782	856	780	734	714	658	733	706	701	654	643	
Month	22,971	21,896	26,536	23,400	22,444	21,420	20,398	22,723	21,180	21,731	19,620	19,933	264,252
Winfield—													
Daily average	2,741	2,567	2,768	4,073	3,634	3,672	3,273	3,667	3,667	3,437	3,156	3,092	
Month	84,971	71,876	85,808	122,190	112,654	107,160	101,463	113,677	109,710	106,547	94,680	95,852	1,206,588
Miscellaneous—													
Daily average	393	345	385	427	439	418	697	696	782	768	709	701	
Month	12,183	9,660	11,935	12,810	13,609	12,540	21,607	21,576	23,460	23,808	21,270	21,731	206,189
OTHER COUNTIES—													
Reno—													
Daily average	137	80	60	65	37	33	30	26	30	19	15	15	
Month	4,247	2,240	1,860	1,980	1,147	990	930	806	900	589	450	465	16,604
Sumner—													
Daily average	16,104	10,370	16,747	17,560	19,108	18,365	16,691	15,441	17,565	21,439	21,122	23,875	
Month	499,224	458,360	519,157	526,800	592,348	550,950	517,421	478,671	526,950	664,609	633,660	740,125	6,708,275
Rice—													
Daily average	1,075	1,055	1,304	1,013	2,098	1,844	2,032	1,983	2,206	2,156	1,955	1,746	
Month	33,325	29,540	40,424	30,360	65,038	55,320	62,992	61,473	66,180	66,836	58,650	54,126	624,264
Russell—													
Daily average	3,504	3,396	3,127	2,922	3,049	2,885	2,783	2,558	2,493	2,616	2,246	2,179	
Month	108,624	95,088	96,937	87,660	94,519	86,550	86,273	79,298	74,790	81,096	67,380	67,549	1,025,764
Kingman—													
Daily average	27	15	14	12	11	10	19	17	14	10	10	10	
Month	837	420	434	360	341	300	589	527	420	310	300	310	5,148
Harvey—													
Daily average	42	39	55	48	57	49	42	57	54	42	38	31	
Month	1,302	1,092	1,705	1,440	1,767	1,470	1,302	1,767	1,620	1,302	1,140	961	16,868
Chautauqua—													
Daily average	2,464	2,462	2,463	2,463	2,463	2,415	2,411	2,402	2,402	2,391	2,231	2,107	
Month	76,384	68,936	76,353	73,890	76,353	72,450	74,741	74,462	72,060	74,121	66,930	65,317	871,997
Elk—													
Daily average	2,844	3,204	3,064	2,452	2,315	2,309	2,360	2,202	2,152	2,119	2,299	2,166	
Month	88,164	89,712	94,984	73,560	71,765	69,270	73,160	68,262	64,560	65,689	68,970	67,146	895,242
Montgomery—													
Daily average	1,826	1,619	1,876	1,876	1,872	1,274	1,316	1,313	1,550	1,539	1,502	1,460	
Month	56,606	45,332	58,156	56,280	58,032	38,220	40,796	40,703	46,500	47,709	45,060	45,260	578,654
Wilson—													
Daily average	218	257	258	257	256	217	223	231	215	216	203	201	
Month	6,758	7,196	7,998	7,710	7,936	6,510	7,222	7,161	6,450	6,696	6,090	6,231	83,959
Allen—													
Daily average	731	737	742	644	605	611	616	619	663	662	675	610	
Month	22,661	20,636	23,002	19,320	18,755	18,330	19,096	19,189	19,890	20,522	20,250	18,910	240,561
Neosho—													
Daily average	563	664	663	620	659	618	601	600	600	601	599	516	
Month	17,608	18,592	20,553	18,600	20,429	18,540	18,631	18,600	18,000	18,631	17,970	15,996	222,150
Lyons—													
Daily average	2,721	2,793	2,438	2,206	2,186	1,984	1,797	1,635	1,602	1,604	1,399	1,207	
Month	84,351	78,204	75,578	66,180	67,735	59,520	55,707	50,685	48,060	49,724	41,970	37,417	715,131
Miami—													
Daily average	664	660	1,136	1,592	2,866	2,155	1,983	2,959	2,658	2,414	2,787	2,780	
Month	20,584	18,480	35,216	47,760	88,846	64,650	61,473	91,729	79,740	74,834	83,610	86,180	753,102
Franklin—													
Daily average	532	457	454	357	357	487	407	495	493	490	481	430	
Month	16,182	12,796	14,074	10,710	11,067	14,610	12,617	15,345	14,790	15,190	14,430	13,330	165,141
Douglas—													
Daily average	55	69	69	69	69	68	67	69	69	69	21	91	
Month	1,705	1,932	2,139	2,070	2,139	2,040	2,077	2,139	2,070	2,139	630	2,821	23,901
Bourbon—													
Daily average	16	19	19	19	34	18	18	16	16	15	15	14	
Month	496	532	589	570	1,054	540	558	496	480	465	450	434	6,664
Woodson—													
Daily average	667	686	660	650	639	635	749	1,170	1,170	1,170	1,060	1,021	
Month	20,677	18,648	20,460	19,500	19,530	19,050	23,219	36,270	35,100	36,270	31,800	31,651	312,175
Linn—													
Daily average	311	311	235	233	220	230	222	221	236	237	214	201	
Month	9,641	8,708	7,285	6,990	6,820	6,900	6,882	6,851	7,080	7,347	6,420	6,231	86,855
Anderson—													
Daily average	2,892	2,788	2,650	2,283	2,377	2,298	2,261	1,876	1,916	1,910	2,097	2,050	
Month	89,683	78,064	82,150	68,490	73,687	68,940	70,091	58,156	57,480	59,210	62,910	63,550	832,411
Coffey—													
Daily average	261	260	259	250	247	285	263	285	293	288	306	400	
Month	8,091	7,280	8,029	7,500	7,657	8,550	8,153	8,835	8,790	8,928	9,180	12,400	103,393
Labette—													
Daily average	25	27	27	27	27	55	51	50	25	25	24	24	
Month	775	756	837	810	837	1,650	1,581	1,550	750	775	720	744	11,785
Chase—													
Daily average	.....	.....	.....	.....	.....	.....	.....	.....	30	30	26	24	
Month	.....	.....	.....	.....	.....	.....	.....	.....	900	930	780	744	3,354
Daily average	121,609	119,717	118,553	117,231	119,494	114,586	111,422	111,040	111,378	113,199	110,455	110,554	114,514
Total 1927	3,769,879	3,352,076	3,675,143	3,516,930	3,704,314	3,437,580	3,454,082	3,442,240	3,341,340	3,509,169	3,313,650	3,427,174	41,943,577
Total 1926	3,250,536	2,891,812	3,334,887	3,330,120	3,516,640	3,346,470	3,582,267	3,681,436	3,450,060	3,714,637	3,593,490	3,654,156	41,346,511
Total 1925	3,520,858	2,466,660	3,824,534	2,971,110	3,493,366	3,229,440	3,686,675	3,558,087	3,393,270	3,477,146	3,221,760	3,308,816	38,151,622
Total 1924	3,323,878	2,113,853	3,206,426	2,268,540	2,659,765	2,469,320	2,671,053	2,717,398	2,638,900	2,766,455	2,597,460	2,537,443	29,671,551
Total 1923	2,638,976	2,260,288	2,885,631	2,634,480	2,863,217	2,797,830	2,448,866	2,816,320	2,234,730	2,336,346	2,268,840	2,345,150	29,812,123



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"It's There TO STAY"

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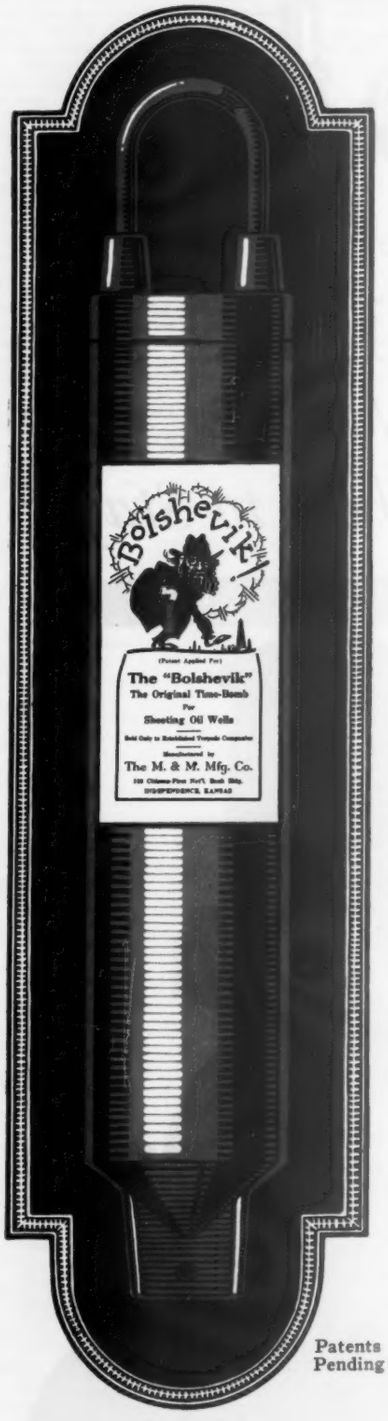

Patents Pending

Bolshevik Scores Again in Deepest Oil Well Ever Shot

No. 1 Williams, Logan County, Oklahoma, owned by L. H. Wentz Oil Division, was successfully shot on January 18th at the record oil well depth of *6235* feet.

Bolshevik was used to detonate the shot and W. F. (Bill) Knode, well known shooter with headquarters at Tonkawa, a user exclusively of Bolshevik time bombs for the past three years, says "I set her at 3 P.M. to explode at 4:30 P.M. and she went right on the dot."

Mr. Taliaferro, production superintendent and Mr. Knode reported very hot oil and extremely heavy "lodestone" were encountered in the shooting of the well.

An *ordinary* time bomb—*without* the exclusive safety device that is a working part of every Bolshevik—may explode prematurely while being run through the casing to the shot. Such an accident resulting in the plugging of a deep well would cause tremendous financial loss.

No such chance was taken in the shooting of the No. 1 Williams. SAFETY coupled with RELIABILITY places the BOLSHEVIK, THE ORIGINAL TIME BOMB OF THE INDUSTRY, absolutely in a class by itself.

They're Going Deeper!

During the past few years, deeper and deeper wells have been the order of the day.

On February 6, 1926, shooter Ray Jamison shot a well for the Watchorn Oil & Gas Company in Comanche County, Kansas, with a Bolshevik, at 5200 feet.

On March 29th, 1927, shooter Jack Rapp, of Ranger, Texas, shot Wyrick No. 1 in Bosque County, Texas, for The Telegram Oil Company at 6110 feet. He too used a Bolshevik.

Hundreds of shots at Seminole have been detonated with Bolshevik at from 4,000 to 4,600 feet—depths that are now commonplace.

Now comes the L. H. Wentz well at 6235 feet, as noted above. Who will be the first to break this new record? Whoever does, will without doubt use a BOLSHEVIK. Bolshevik offers *the only safe time bomb for shooting oil wells ever developed.* Only the BOLSHEVIK has a simple, dependable safety device built into it, allowing 40 minutes for safe loading and running to the shot. Only BOLSHEVIK provides SAFETY TO THE SHOOTER AND SAFETY TO THE OIL PRODUCER'S MEN AND PROPERTY. That's why it is the favorite of the shooters themselves.

BOLSHEVIK TIME BOMBS are carried in stock at all shooting stations, by all Torpedo-Glycerin Companies—ready for your call.

$50.

ONE PRICE TO ALL

Bolshevik Time Bombs are sold through established Glycerin-Torpedo Companies ONLY, at a standard price of $50.00 to everybody, for the Regular and Baby Bolshevik ($55 in Rocky Mountain Region). The Twin Bolshevik (with TWO separate clocks and TWO firing mechanisms in one container) sells for $80.00. (Rocky Mountain Region $85.00.)

See Your Shooter—He Carries Them

The M. & M. Manufacturing Co.

528 Citizens National Bank Bldg.

Independence, Kans.

Many Useful Lives Ended in 1927

Men Known Wherever Oil Is Produced in the World Included in List of Those Who Passed Away Last Year

A long list of oil men of all degrees passed out of this life during 1927. Men known wherever oil is produced in the world were among the dead. The list includes a number of pioneers who came into the oil business from 50 to 60 years ago. All branches of the industry lost valuable men by death.

The names of those whose deaths were recorded in The Oil and Gas Journal in the past year follow chronologically.

January

Robert McLenahan, aged 59, veteran oil country blacksmith and tool maker, died January 1 at his home in Bradford, Pa.

Charles E. Easley, chief engineer of the Tonkawa, Okla., natural gasoline plant of the Gypsy Oil Co., and Albert Cravens and Charles Dwelly, employes, died January 2 as the result of an explosion and fire at the plant.

William Edward Albert Richards, pioneer natural gasoline manufacturer, age 83, died January 2 at his home in Warren, Pa.

Ranson Y. Mitchell, age 84, died January 1 of stricture of the throat at his home in Findlay, Ohio.

James C. Donnell, age 72, president of the Ohio Oil Co., died January 10 from a heart attack induced by influenza, at his home in Findlay, Ohio.

Harry Aid, age 29, zone geologist for the Gulf Production Co., died January 7 at his home in Fort Worth, Tex. Death was attributed to fever contracted in the tropics.

T. T. Smith, driller for the Magnolia Petroleum Co., was killed at Iowa Park, Tex., by a hose nozzle falling 30 feet and striking him on the head.

A. Edwin Aggas, age 54, oil accountant, died January 5 at his home in Tulsa, Okla.

Edwin F. Black, age 51, vice president of Black, Sivalls & Bryson, tank manufacturers, died January 10 at a Tulsa, Okla., hospital from an attack of influenza.

Ellis Victor Smith, age 25, gas inspector for the Southern Ontario Gas Co., died January 8 at Chatham, Ontario, as a result of injuries received in a well explosion.

James Beresford, age 80, formerly prominent in the Petrolia oil field, died January 2 at the Victoria Hospital, London.

E. M. Telle, age 52, lease broker and owner of the E. M. Telle Refining Co. and the Telle Pipe Line Co., died January 15 at his home in El Dorado, Ark.

Frank Harman, age 56, pioneer drilling contractor in Oklahoma, dropped dead January 15 at the home of his sister in Pittsburgh, Pa.

Viscount Bearsted, founder of the Shell Transport & Trading Co., died January 10 at his residence in London.

Gilbert Heydrick, civil engineer, died January 15 in Alexandria, La. His home was in Wichita Falls, Tex., where he conducted the Heydrick oil field mapping business.

Charles H. Rawlings, age 57, driller, of Chatham, Ontario, died January 20 at Long Beach, Calif.

Thomas J. Ryder, age 62, pioneer oil man and president of the Rycade Oil Corp., died January 19 at the Postgraduate Hospital in New York.

Dr. M. P. Cullinan, age 62, president of the Border Gas Co., died January 20 at his home in Laredo, Tex.

Henry N. Winner, age 47, general manager of the Garlock Packing Co., Palmyra, N. Y., died January 21 at Philadelphia.

E. A. Doran, age 55, prominent California operator and president of the Doran Oil Co., died January 22 from heart disease at his home in Los Angeles, Calif.

Dr. Howard Weber, age 65, pioneer Oklahoma oil producer, died January 29 from heart disease at his home in Bartlesville, Okla.

Edward T. Dumble, age 64, former vice president and manager of the Rio Bravo Oil Co., and a pioneer geologist in the Southwest, died January 20 at Nice, France.

J. D. McArthur, age 73, prominent in oil development in Canada, died January 29 at Winnipeg, Canada.

February

Charles D. Gillespie, oil operator, died February 1 at his home in Toledo, Ohio, after a prolonged illness.

Cyrus Benefield, age 57, died February 1 at his home in California.

Noble Clark, age 75, superintendent of the National Transit Co., died February 2 as the result of a stroke of paralysis at his home in Warren, Pa.

W. W. McGowan, age 35, formerly of Tulsa and Okmulgee, Okla., died February 7 at his home in Nevada, Mo.

George P. France, age 44, for many years chemist for Imperial Oil, Ltd., died February 1 as the result of a bullet wound inflicted by an intruder at Mr. France's summer home.

Joseph Burns, age 52, died February 5 at his home in Muskogee, Okla. Mr. Burns was vice president and general manager of the Penmar Oil Co., and president of the Burns Tool Co., of Okmulgee, Okla.

Ivan S. Parkhurst, petroleum engineer of the Empire Refineries, Co., Bartlesville, Okla., died Feburary 8 in Oklahoma City, Okla.

James Robert McDonald, age 30, was found dead in bed at his home in Eureka, Kans.

Patrick Yorke, retired manufacturer of oil field equipment, age 74, died February 12 at his home in Washington, Pa., after a lingering illness.

Franklin Fertig, age 82, died February 14 at his home in Pasadena, Calif. He was a pioneer operator in the Pennsylvania fields.

John Wesley Thompson, age 33, was instantly killed February 18 by the explosion of a boiler in the oil field at Sullivan, Ind., where he was employed as a driller.

Leon Polk, age 19, was killed at Borger, Tex., when a cable became entwined about his neck and dragged him over the bull wheel.

James J. Grant, contractor, died February 15 at the home of his father-in-law at Burkesville, Ky.

Silas Baldwin, age 84, died February 10 at the home of his daughter in Bradford, Pa. He had been active in the Pennsylvania oil fields since 1860.

A. M. Sellery, for more than 10 years connected with the land department of the Ohio Oil Co., died February 17 at El Paso, Tex., from black jaundice.

Lewis D. Perrine, age 82, a pioneer oil man of the Pit Hole excitement, died February 7 at his home in Butler, Pa.

Bernard Staab, age 22, died February 26 at his home in Oil City, Pa. He had been employed in the Clarion County fields.

William Kratzer, age 104, died February 24 at his home in St. Petersburg, Pa. He had lived in Clarion County all of his life and was one of the pioneer operators of that part of the State.

William Lincoln Dunn, age 63, president of the Dunn Manufacturing Co., died February 25 at his home in Oxnard, Calif., after a protracted illness.

Tom Payne, Oklahoma oil operator, died February 28 at his home in Okmulgee, Okla. It was through Mr. Payne's influence and assistance that the Bald Hill Pool in Okmulgee County was discovered.

Alfrid Forian, age 48, one of the best known drillers in foreign fields, died February 12 at Miri, Sarawak, Borneo, of malaria.

John McMurray, age 39, died February 6 at a hospital in Tulsa, Okla., from a throat irritation and heart disease. He was formerly assistant to the head of the land department of The Texas Company.

March

William Nolan Sheehan, age 24, died March 2 at St. Luke's Hospital in Kansas City after a seven weeks' illness. His home was in Tulsa, Okla., where he was connected with the Sheehan Pipe Line Construction Co.

Kasper Kugler, age 84, died March 1 at Oil City, Pa. Mr. Kugler was first to make a large set of drilling tools, also a set of jars used in drilling.

H. J. Slicker, age 66, prominent oil and gas producer, died March 3 from an apopletic stroke at his home in Knox, Pa.

William P. McKee, age 81, veteran gauger and retired employe of the National Transit Co., died March 3 at his home in Clintonville, Pa., as the result of a stroke suffered in April, 1926.

T. J. Williams, for several years chairman of the marketing committee of the Standard Oil Co. of New Jersey, died March 8 at his home in Deland, Fla.

Charles Kelly Clark, age 62, president of the Standard Oil Co. of Louisiana, was found dead March 21 in the bathroom of his home at Baton Rouge, La.

John D. DeHart, age 84, veteran oil operator, died at his home in Petaluma, Calif.

John H. Morrison, age 71, died March 15 at his home in Oil City, Pa. The past 16 years he has been president of the Franklin Foundry Co. of Franklin, Pa.

F. L. Clements, age 64, traffic manager of the Gulf Pipe Line Co. for 20 years, died March 20 at a hospital in Houston, Tex., after an illness of eight weeks.

Marion Henshaw, age 83, one of the first producers in Oil Creek, in Pennsylvania, died March 27 at his home in Butler, Pa.

Capt. Eugene P. Constantin, age 64, president of the Tonkawa Refining Co., died at his home in Tulsa, Okla., after an illness of several weeks.

William E. McBride, pioneer oil man, died March 15 in the Queen of Angeles Hospital, Los Angeles, Calif.

W. R. Stewart, age 73, one of the pioneers in the oil industry, died March 24 at the County Hospital as the result of a cerebral hemorrhage.

William Lindsay, age 87, died March 24 at Oakland, Calif. About 35 years ago he went to Brisbane, Australia, with the International Deep Well Co., of which he later became president and managing director.

William Gustin, age 42, purchasing agent for the Mammoth Oil Co., died March 27 at the Salt Creek Field Hospital after an accident on the Salt Creek highway from which pneumonia developed.

Paul Arbon, president of Paul Arbon & Co. of Tulsa, Okla., the inventor of many well-known oil field equipment specialties bearing his name, died March 11 in Paris, France.

April

Gordon W. Johnson age 49, prominent figure in the Denver, Colo., offices of the Continental Oil Co., died April 1 in the Colorado General Hospital in Denver.

J. H. McNabb, age 40, for four years in charge of the Ohio Oil Co.'s warehouse at Casper, Wyo., died April 1 at the Casper Hospital after an operation for appendicitis.

Joseph Woodworth, age 82, died April 1 at Orilla, Ontario. Mr. Woodworth was an expert tanker, being employed by the Stokes and Carmichael interests.

James Bennett Porter, age 54, special representative of the Oklahoma Natural Gas Corp., suffered a stroke April 2 and died a few hours later at his home in Tulsa, Okla.

Joseph Parks, age 46, manager for the Sun Oil Co. in the Arkansas Field, died April 2 at San Antonio, Tex.

Eli Admire, age 55, editor of the Oilton (Okla.) Gusher and well known to oil men who operated in the Cushing-Shamrock oil field, committed suicide April 13.

Mark E. Davis, age 55, member of the firm of Heggem & Davis, oil producers, died April 12 at his home in Tulsa, Okla., after an illness of three weeks.

John S. Griffin, one of the largest independent oil producers in the industry and a resident of Tulsa, Okla., died April 11 in a St. Louis hospital of Bright's disease.

Capt. Alonzo J. Thompson, age 87, pioneer oil producer, died April 15 at his home in Titusville, Pa.

Smith L. Titus, father of C. W. Titus, Tulsa, Okla., oil operator, died in St. Joseph's Hospital April 14 after an attack of influenza.

Noah C. Adams, age 36, geologist, died April 18 at his home in Tulsa, Okla.

Allie Smith, age 44, drilling contractor, was killed April 20 in an automobile accident near Greenville, Tex.

May

Viscount Cowdray (Weetman Dickinson Pearson), age 71, oil and industrial magnate of Great Britain, died at his Scottish residence, Dunecht House, May 1.

William McGinn, secretary of the New Mexico Oil Men's Association, was instantly killed May 5, near Artesia, N. Mex.

T. S. Sligh, Jr., was killed May 12 by the accidental discharge of a pistol at South Bend, Ind., where he had recently joined the Studebaker engineering staff. He was formerly with the United States Bureau of Mines.

Col. A. E. Humphreys, nationally known producer and wildcatter was killed May 8 by the accidental discharge of one of his own guns as he was preparing for a hunting trip. The accident occurred at his home in Denver, Colo.

Phineas L. Golden, age 82, died at his home in Bradford, Pa., May 8. He was among the earliest operators in the Duke Center district in the Bradford Field.

Ivan L. Tilden, for the past four years head of the land and leasing department of the Magnolia Petroleum Co. in the Southwest Texas Field, died May 9 at San Antonio, Tex.

Joseph E. Herr, age 70, died May 22 in a Pittsburgh, Pa., hospital. He had been in the service of Standard pipe line companies for many years.

George Williams, long connected with the Cities Service Co., died May 27 at the Maine General Hospital, at Portland, Me. He was a director in many public utility and industrial corporations

Daniel E. Collins, age 67, retired oil man, died May 30 at his home in Okmulgee, Okla.

George Kaber, age 75, veteran oil producer in the Bradford Field of Pennsylvania, died May 23 at his winter home in Tarpon Springs, Fla.

June

W. L. Jeffords, veteran oil producer in shallow sand territory, died June 6 at his home in Chelsea, Okla.

Robert D. Laughlin, died June 1 at his home in Olean, N. Y., following an illness of several weeks. He built the first refinery in Olean.

Samuel P. Fleming, age 74, died June 1 in Tulsa, Okla., after a brief illness.

He had been in the employ of the Paragon Refining Co. for many years.

A. W. Smiley, age 83, died at his home in Foxboro, Pa., June 4. Mr. Smiley was the oldest pipe line man in point of time from his first employment.

Col. J. W. Zevely, attorney for Sinclair Consolidated Oil Corp. since 1917, died June 10 at his home in East Hampton, L. I.

Arthur M. Donnelly, age 64, president of the Eastland Oil Co. and the A. M. Donnelly Drilling Co., died June 22 at his home in Fort Worth, Tex.

R. L. Steiner, of Wichita Falls, Tex., president of the Steiner Oil Co., and a well-known operator in the Texas fields, died suddenly June 20 at the Mayo Hotel in Tulsa, Okla.

David G. Bradner, age 81, veteran oil operator in the Pennsylvania fields, died June 10 at the home of his daughter in Warren, Ohio.

John Teele Pratt, internationally known financer and brother of Herbert L. Pratt, president of the Standard Oil Co. of New York, died suddenly June 24 in his private office in New York. Death was attributed to an attack of acute indigestion.

L. E. Yundt, vice president of the Wadhams Oil Co. of Milwaukee, Wis., died suddenly June 19 of heart disease. He had been connected with the Wadhams company continuously since 1899.

Thomas King, age 84, fell dead June 22 on a street in Muskogee, Okla. Mr. King was one of the earliest oil field workers in the United States.

Henry Clay Pierce, age 78, prominent in the oil industry, died June 27 in New York.

July

Prof. Charles F. Mabery, age 77, died July 3 at a hospital in Portland, Me. He was an internationally known scientist and for 35 years had been head of the Standard Oil Co.'s laboratory.

John Ross Polly, member International Petroleum Co., died July 1 at his home in Toronto, Canada.

Perry A. Little, of Buffalo, N. Y. died in Venice, Italy, where he was attending the International Rotary Convention.

Eddie R. Hayes, an oil man of Nocona, Tex., died at his home there July 10.

Charlotte Marland, age 58, sister of E. W. Marland, president of Marland Oil Co., died July 10 at Ponca City. Death was due to pneumonia.

E. G. Sinclair, age 42, former geologist for Midwest Refining Co., was accidentally shot and killed July 8 on his ranch in Montana.

William A. Stover, age 78, pioneer oil and gas contractor, died July 13 at his home in Clarion, Pa.

J. H. McEwen, former president of the McEwen Manufacturing Co., now the Braden Steel & Winch Co., of Tulsa, Okla., died July 9 at his home in Wellsville, N. Y.

Arthur F. L. Bell, age 66, pioneer California oil man, died July 10 at his home in Los Angeles.

James McManus, age 59, producer, died July 18, at his home in Bradford, Pa.

Peter Hewitt, age 82, died July 22 at his home in Okmulgee, Okla., after a year's illness traceable to heart weakness.

G. C. Morgenstern, age 47, oil editor of the Tulsa Daily World, died July 25 at his home in Tulsa after a lingering illness.

Thomas F. Daley, age 62, drilling contractor of Sapulpa and Tulsa, Okla., died July 30 at his home in Sapulpa.

H. O. Seymour, director of the Chain Belt Co., of Milwaukee, Wis., died July 23 at his home, Lake Geneva, Wis., of heart failure.

August

Eugene Neill, age 59, gauger for the Eureka Pipe Line Co., died August 5, at Parkersburg, W. Va.

Richard James Poley, age 56, died August 1 at Petrolia, Ontario. He was on the staff of the Canadian Oil Refineries, Ltd.

John H. Larson, age 49, died August 14, at Tulsa, Okla., after an illness of four weeks. His home was in Pittsburgh, Pa.

Malcolm D. Geddes, of Calgary, Alberta, was killed August 5 on Mount Lefroy, one of the highest peaks of the Rockies while making a descent.

Edward S. Powers, age 51, for many years affiliated with the Joseph Seep Purchasing Agency, died August 23 at his home in Titusville, Pa.

Jack Henderson, age 25, field superintendent for the E. L. Smith Oil Co., at Nocona, Tex., was instantly killed August 21 when his automobile turned over.

Patrick Louis McGreal, age 54, for 13 years in charge of The Oil and Gas Journal's news bureau at Houston, Tex., died suddenly in the lobby of the Cotton Hotel in Houston on August 27.

J. B. Phillips, age 71, old time operator and refiner, died August 25 at the home of his daughter, Mrs. W. C. Slusser at Casey, Ill.

M. R. Shaner, age 71, died August 26 from a stroke of apoplexy at his home in Butler, Pa.

September

P. L. Kratzer, age 73, driller, died September 2 at a hospital in Tulsa, Okla. He operated in Pennsylvania and Oklahoma oil fields.

Arthur F. Cole, age 57, manager of the drilling division of the Pure Oil Co., died suddenly September 3 at his home in Newark, Ohio.

Dr. Eugene Allen Smith, state geologist of Alabama since 1873, died September 7 at Tuscaloosa, Ala.

W. L. Mills, age 24, geologist and scout for the Southern Crude Oil Purchasing Co., died September 20 at a hospital at Pecos, Tex.

William Ashton Simpson, age 79, formerly a drilling contractor at Petrolia, Ontario, died September 21 at Vancouver, British Columbia.

Frank B. Lyons, age 63, retired Eureka pipe liner, died September 25 at Downs, W. Va.

Neil McKeever, age 61, operator, died September 29 at his home in Tulsa, Okla. He had been an invalid several years following a stroke of paralysis.

Conrad K. Bontz, chief geologist of the Standard Oil Co. of New Jersey, died September 22 in the jungles of Brazil from blood poisoning.

October

W. E. Stich, father of Mrs. E. W. Sinclair, died October 6 at his home in Independence, Kans.

Sam Clark, veteran rig builder with the Emsco Derrick & Equipment Co., of Los Angeles, was killed on October 1 in an automobile accident.

Mrs. Helen Aylesbury McCoy, wife of Alex W. McCoy, vice president of the Marland Oil Co., of Colorado, died October 1 at Denver, Colo.

R. L. Lucas, age 50 years, president of the Lucas Drilling Co., of Okmulgee, Okla., and a well known contractor in the Mid-Continent Field died suddenly October 2 at his home in Okmulgee.

Samuel L. Martin, age 48, chief scout for The Texas Company in the Oklahoma-Kansas fields, died October 1 at Sistersville, W. Va., after a year's illness.

Arthur D. Rhoades, age 58, drilling contractor, died October 2 at his home in Tulsa, Okla.

William H. Spain, age 82, died October 1 at his home in Denver, Colo. Mr. Spain was connected with the Oil Well Supply for 45 years and was a director in the company for several years.

Frank Springer, age 79, widely known paleontologist and writer, died October 1 in Philadelphia. His home was in Las Vegas, N. Mex.

O. B. Manross, Mid-Continent refiner, died suddenly October 7 at his home in Tulsa, Okla. Heart disease was the cause of his death.

W. H. Sharp, age 45, promiment oil operator in the Gulf Coast region, died October 4 from injuries received when an airplane in which he was riding was forced down at Caldwell, Tex. His home was in Houston, Tex.

Matthias Hafele, age 83, died October 10 at his home in Emlenton, Pa.

Bovard, Pa., after a prolonged illness.

Dana Walter, nitroglycerin shooter, was killed October 15 near Shelby, Mont. when a magazine let go.

George A. Rumsey, age 71, producer, died October 10 at his home in Clintonville, Pa., after an illness of several weeks.

A. L. Forquer, purchasing agent for the Amerada Petroleum Corp., died October 14 at his home in Tulsa of heart disease.

Capt. Willie J. McKie, age 72, pioneer oil man, died October 18 at his home in Corsicana, Tex.

Dewitt G. Duffee, age 57, producer, died October 23 at his home near Bradford, Pa.

John Sheppard, producer, died October 23 in a Chicago hospital after an extended illness.

November

Jeremiah P. O'Meara, age 60, prominent in petroleum law for more than 20 years, died November 7 at his home in Tulsa, Okla.

William Garrett, age 84, operator, died November 10 at Petrolia, Ontario.

Bloss Parsons Corey, age 56, died November 9 at Petrolia, Ontario, of heart failure.

John Henry Fairbank, age 27, died November 1 at Petrolia, Ontario.

W. J. Hungate, age 54, formerly secretary and general manager of the Great Southern Refining Co., died November 20 at Philadelphia, Pa.

J. D. Flurey, age 88, died November 22 at Toledo, Ohio.

Charles Storrow, age 87, died November 18 at Boston, Mass.

Erastus T. Patterson, age 62, treasurer of the Prairie Oil & Gas Co., died suddenly November 27 at his home in Independence, Kans. For 43 years he had been connected with one or another of the Standard group of companies.

Dr. Israel C. White, age 79, state geologist for West Virginia since 1897, died November 24 at the Johns Hopkins Hospital in Baltimore, Md. Death followed a minor operation which he underwent a few days before.

December

John W. Widner, veteran employe of the Standard Oil Co. of Indiana, died December 1 at Chicago.

L. R. Stone died December 8 in Chicago. He formerly represented the George C. Peterson Co. and had his home in Tulsa, Okla.

P. S. Powell, age 58, died December 9 at a hospital in San Antonio, Tex.

Frank Miller, age 51, driller, died December 10 in a hospital at Houston, Tex. He was a familiar figure in the Texas fields, where he was nicknamed "Uncle Peg" by his many friends after he had lost a leg in an accident while on duty.

Richard P. G. O'Grady, age 69, oil lease broker, died December 26 in Tulsa, Okla., after a long illness.

Gen. Charles Miller, age 84, retired oil man, died December 20 of heart disease at his home in Miller Park. He was the founder of the Galena Signal Oil Co. and was its president until 11 years ago.

Joseph V. Horrigan, president of the Horrigan Boiler Works, died December 27 at his home in Tulsa after a 10 days' illness of influenza.

Charles Richards, age 55, died December 20 at Sarina, Ontario.

Joseph S. Mitchell, head of the Diamond drill department of the Sullivan Machinery Co., Chicago, died December 22, following an attack of acute indigestion.

Alfred C. Stewart, age 53, inventor and California pioneer, died December 9 at his home in South Pasadena.

Harry Snell, one of the veterans of the oil business, died December 25 at Toledo, Ohio.

J. F. Zagst, age 62, died December 28 in a hospital at El Dorado, Ark., after a short illness.

Harvey John Hopkins, age 79, pioneer oil worker, died December 28 in Buffalo.

RECORD BREAKING YEAR FOR OKLAHOMA FIELDS

(Continued from Page 122)

falling off and there would have been a shortage of oil in the United States. The Seminole City Pool produced 47,039,644 bbls.; Earlsboro Pool, 36,885,196 bbls.; Bowlegs Pool, 36,649,733 bbls.; Searight, 10,232,511 bbls.; Little River, 5,144,014 bbls.; all being a part of the Seminole Field. The production of the State in January, 1927, averaged 614,046 bbls. a day, increased steadily to 855,566 bbls. as an average for July and then began to decline until in December it had reached 716,400 bbls. per day, partly because of extreme cold weather, having dropped for an average of 769,446 bbls. a day in November. On July 30, the State reached its very peak which was estimated at very close to 900,000 bbls.

	Production of Oklahoma
1923	165,913,685
1924	176,206,397
1925	173,270,063
1926	177,661,198
1927	276,022,024

OKLAHOMA
Completions by Counties

County—	Comp.	Prod.	Dry	Gas
Carter	140	21,644	41	10
Creek	548	57,051	181	69
Garfield	61	6,791	26	3
Grady	265	19,221	60	7a
Kay	229	42,468	74	50
Lincoln	40	5,300	16	3
Muskogee-				
Wagoner	235	1,871	144	41
Okfuskee	99	13,197	46	22
Okmulgee	261	3,726	96	52
Osage	399	63,566	115	56
Pawnee	91	2,145	70	8
Seminole	1,260	1,472,680	235	15
Stephens-				
Cotton	163	14,727	67	21
Tulsa	124	4,230	55	17
Logan	10	3,054	4	3
Love	3	0	3	0
Hughes	51	3,053	24	7
Grant	9	368	4	4
Pittsburgh	7	0	3	4
Jefferson	14	144	10	1
Tillman	4	0	4	0
Nowata	30	254	7	1
Texas	5	0	4	1
McIntosh	14	30	8	4
Beckham	9	0	5	4
Caddo	24	837	2	2
Payne	35	8,231	15	5
Garvin	54	8,679	20	6
Mayes	2	0	2	0
Rogers	35	133	19	3
Pontotoc	27	2,526	5	6
Coal	1	0	1	0
Pottawatomie	171	215,207	35	8
Marshall	3	0	3	0
Washington	16	73	5	0
Comanche	13	35	11	0
Major	2	0	2	0
Jackson	1	0	1	0
Noble	5	6	4	0
Kingfisher	3	0	3	0
Canadian	1	0	1	0
Oklahoma	5	40	4	0
Johnson	1	0	1	0
Kiowa	1	0	1	0
Haskell	3	0	0	3
Murray	1	0	1	0
Sequoyah	2	0	0	2
Cleveland	3	0	3	0
Craig	1	4	0	0
Leflore	1	0	1	0
Cimarron	1	0	1	0
Total 1927	4,513	1,971,081	1,443	508
Total 1926	5,352	986,502	1,735	498
Difference	839	984,579	292	10

Completions by Months

Month—	Comp.	Prod.	Dry	Gas
January	439	137,489	141	48
February	348	132,924	96	25
March	386	146,824	113	44
April	458	147,248	144	48
May	372	197,341	125	49
June	362	201,450	108	32
July	423	289,333	136	60
August	325	231,263	113	25
September	321	157,860	128	40
October	410	170,816	125	52
November	376	98,896	122	42
December	293	59,647	92	52
Total 1927	4,513	1,971,081	1,443	508

Records of Past Six Years

Year—	Comp.	Prod.	Dry	Gas
1926	5,352	986,502	1,735	498
1925	4,978	879,558	1,578	471
1924	4,814	1,211,446	1,308	468
1923	5,883	1,277,936	1,731	587
1922	6,148	1,190,165	1,428	571
1921	5,715	589,298	1,507	670

FOUR NEW CALIFORNIA FIELDS OPENED IN 1927

(Continued from Page 136)

developed commercial production in the Edison district, about 7 miles southeast of Bakersfield, but this well was not actually finished until early in January and consequently does not appear in the production figures of 1927. The Rincon-Seacliff Field, located approximately 6 miles west of the prolific Ventura Avenue Field, only produced a total of 5,923 bbls. in 1927 due to its discovery late in the year, but present indications point to a much larger output in 1928, although it will probably never be classified as a gusher district unless a deep zone is later discovered. The Goleta Field, situated about 15 miles west of Santa Barbara, contributed 86,840 bbls. to the State's total production in 1927 and while this district showed very promising indications during its early life subsequent developments have proven distinctly discouraging as far as large production is concerned. The Miley Oil

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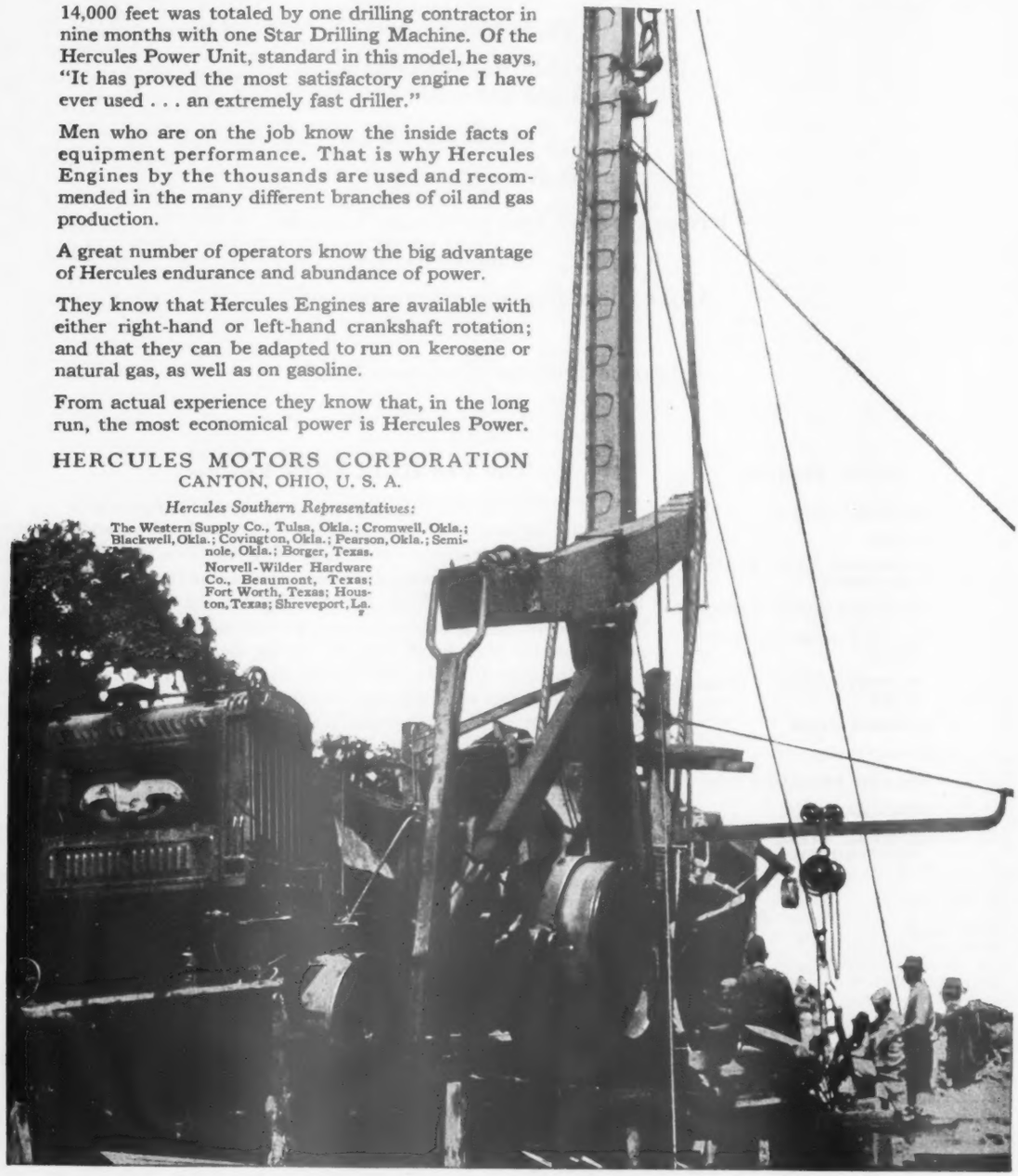

Co. opened up the Tecolote anticline at Goleta and the Barnsdall Oil Co. followed up this success several months later by getting production on the Edwards anticline, a continuation of the Tecolote structure.

Intercoastal Tanker Shipments

Total intercoastal tanker shipments to Atlantic and Gulf Coast ports during 1927 showed practically no change from the total cargoes lifted in 1926, although considerable variations occurred in the several different commodities handled. Gasoline liftings for instance were 3,034,601 bbls. larger than the amount tankered to the East Coast in 1926. The increased amount of gasoline shipped to Atlantic and Gulf Coast ports in 1927 resulted in smaller shipments of crude oil, fuel oil, Diesel and gas oil. Intercoastal shipments of naphtha, tops, which aggregated 369,474 bbls. in 1926 were eliminated entirely in 1927, but this deficit was offset by 330,972 bbls. of kerosene, the first shipment of this commodity being made in November, 1927. The movement of lubricating oil showed a slight gain, 1926 showing a total of 407,870 bbls. as compared with 450,339 bbls. in 1927. Intercoastal shipments of crude oil in 1927 were 502,283 bbls. less than in 1926 while fuel oil and gas oil showed losses of 929,526 bbls. and 1,360,486 bbls., respectively.

A total of 82,424,102 bbls. of crude and refined oils left California ports during 1927, of which 33,730,461 bbls. went to Atlantic and Gulf Coast ports and 48,693,641 bbls. to foreign countries. The total intercoastal shipments were only 246,273 bbls. larger than similar liftings in 1926 but export shipments, on the other hand, were 9,168,400 bbls. greater than last year due to substantial increased loadings of fuel oil and motor gasoline. The 31,056,569 bbls. of fuel oil tankered to foreign ports in 1927 were 8,750,365 bbls. larger than last year, while the current exports of gasoline, 9,509,853 bbls. were up 2,591,978 bbls. during the same period. Shipments of tops, 377,392 bbls. in 1927 and 387,464 bbls. in 1926 were about the same but exports of crude oil and kerosene showed a very severe reduction. Diesel and gas oil exports, on the other hand increased from 811,115 bbls. in 1926 to 1,791,443 bbls. during the past 12 months.

Fluid Stocks Reduced

Total fluid stocks held on the Pacific Coast were reduced 8,217,109 bbls. during the past year, declining from 145,612,176 bbls. in storage on January 1 to 137,395,067 bbls. on hand December 31. Light refinable crude showed the largest drop, the 20,268,569 bbls. on hand December 31 being 10,566,488 bbls. less than the 30,835,057 bbls. in storage at the beginning of the year. Naphtha distillates, tops, which have been declining for the past several years, continued to fall off in 1927, the drop during the 12 months just ended being 1,930,763 bbls. Heavy crude and fuel oil continued to accumulate all during the past year, the 93,013,061 bbls. in storage at the present time being 4,305,562 bbls. in excess of the amount on hand at the end of 1926. This commodity has been increasing for several years and from present indications a further accumulation may be anticipated in 1928 unless additional markets are opened up.

901 New Oil Wells

Drilling operations resulted in the completion of 901 new producing wells during 1927, as compared with 913 during 1926 and 948 in 1925. California's biggest year from a development standpoint was 1924, intensive town lot drilling resulting in the completion of 1,238 new wells during that period. The preceding year, 1923, however, was by far the most prolific as the 980 new wells finished during those 12 months registered an aggregate initial production of 1,376,279 bbls. The 901 new wells finished in 1927 were good for a total initial daily production of 479,905 bbls. Seal Beach, due principally to intensive drilling in the Alamitos Heights town lot section, accounted for almost half of the total initial daily production of new wells in 1927 as the 169 new producers completed in that field were good for a total of 204,399 bbls. The total initial production would have been double that recorded if producers had gone down to the deep sand during the early stages of work but since most of the new wells listed went into the top sand first they do not reflect the large flush production subsequently secured in the lower horizons. It is rather surprising to note that Huntington Beach carried off completion honors by yielding 209 new wells during the year, although they only accounted for 73,586 bbls. of new production.

Old Kern River's Activity

One of the most interesting features in connection with development work during 1927 was the unusual activity displayed by the old Kern River Field. Extensive drilling out along the west front resulted in the completion of 121 new wells which showed an aggregate initial daily production of 21,559 bbls. While commenting on the total number of new wells finished during the past year and the initial daily production secured it might not be amiss to call attention to the method of recording California completions. Dry holes in contrast to methods used elsewhere in the United States are not considered as completions in California. The total number of dry holes finished in California from time to time can be ascertained by adding up the number of drilling projects abandoned. Long Beach only showed a total of 48 new wells finished during the past year, an average daily production of 1,048 bbls. per well, but the deep sand exploitation program now under way should result in the addition of another 150 or more during the next several months. There were 40 new wells completed in the prolific Avenue Field during 1927, the average initial daily production per well being 1,575 bbls.

The flush production which prevailed in the Los Angeles Basin during practically the entire year resulted in a very severe reduction in drilling operations in nearly all fields throughout the San Joaquin Valley. Drilling at Kern River was up this year due to extension work out along the front and while Midway-Sunset showed 91 new wells and 12,354 bbls. of new production this is considerably less than half the normal amount of work which would ordinarily be expected. The total number of dry holes and old oil wells abandoned in the state during 1927 was on a par with last year, the current total being 281 as compared with 284 in 1926. The 252 producing wells abandoned in 1927 because of exhaustion, depletion or mechanical trouble was over 50 per cent larger than in 1926 when an even 200 former producers were charged off. Water intrusion and mechanical trouble resulted in the loss of 115 former producers in the Long Beach Field during the past year but most of these were located out in the Los Cerritos or northwest extension where only a limited amount of producing formation was encountered.

CALIFORNIA POTENTIAL DAILY PRODUCTION
1923-1927 INCLUSIVE

	Marketable Daily Production	No. of Wells Producing	Curtailed—Daily Production	Curtailed—No. of Wells	Total Potential—Daily Production	Total Potential—No. of Wells
YEAR 1923						
1923						
January	530,885	9,077	82,064	1,866	612,949	10,943
February	586,670	9,094	98,936	1,877	685,606	10,971
March	632,522	9,058	98,936	1,877	731,458	10,935
April	689,865	9,043	103,936	1,902	793,801	10,945
May	694,689	8,847	154,270	2,210	848,959	11,057
June	755,570	8,859	154,270	2,210	909,840	11,069
July	814,906	8,808	154,270	2,210	969,176	11,018
August	852,903	8,832	154,270	2,210	1,007,173	11,092
September	858,750	8,922	154,270	2,210	1,013,020	11,132
October	792,787	8,617	111,551	2,579	904,338	11,196
November	746,595	8,590	111,551	2,579	858,146	11,169
December	706,427	9,396	111,551	2,579	817,978	11,975
Daily average	722,545	8,933	124,288	2,192	846,833	11,125
YEAR 1924						
1924						
January	674,597	9,801	30,050	1,313	704,647	11,114
February	666,939	10,283	42,653	884	709,592	11,167
March	642,362	10,549	26,396	785	668,759	11,334
April	643,328	10,826	19,500	496	662,828	11,322
May	639,793	10,900	12,500	481	652,293	11,381
June	626,933	11,062	13,930	431	640,863	11,493
July	621,766	11,305	15,430	498	637,196	11,803
August	616,548	11,080	21,207	628	637,755	11,708
September	610,274	11,169	21,207	678	631,481	11,847
October	603,115	11,282	21,207	578	624,322	11,960
November	592,234	11,258	21,207	678	613,441	11,936
December	606,294	11,319	21,207	688	627,501	12,007
Daily average	628,588	10,903	22,089	687	650,677	11,590
YEAR 1925						
1925						
January	604,622	11,380	22,251	661	626,873	12,041
February	602,494	11,446	22,251	640	624,745	12,086
March	600,839	11,482	22,251	640	623,090	12,122
April	598,655	11,590	22,251	640	620,906	12,230
May	607,107	11,628	22,251	640	629,358	12,268
June	642,938	11,680	43,452	1,270	686,390	12,950
July	658,421	11,579	43,452	1,270	701,873	12,849
August	677,599	11,675	43,452	1,270	721,051	12,945
September	668,759	11,093	61,103	1,901	729,862	12,994
October	645,648	11,066	64,003	1,961	709,651	13,027
November	626,530	11,029	64,153	1,986	700,683	13,015
December	620,958	11,069	65,003	1,986	685,961	13,055
Daily average	630,541	11,393	38,195	1,239	668,736	12,632
YEAR 1926						
1926						
January	615,147	11,108	61,503	1,924	676,650	13,032
February	612,999	11,188	61,503	1,924	674,502	13,110
March	607,283	11,317	56,969	1,905	664,252	13,222
April	603,059	11,389	54,269	1,872	657,328	13,261
May	602,166	11,437	54,269	1,872	656,435	13,309
June	608,981	11,305	52,419	2,022	661,400	13,327
July	604,619	11,273	53,269	2,115	657,888	13,388
August	605,325	11,245	53,269	2,115	658,594	13,360
September	603,498	11,254	53,269	2,115	656,767	13,369
October	611,808	11,296	53,269	2,115	665,077	13,411
November	639,104	11,316	53,419	2,116	692,523	13,432
December	654,095	11,333	54,269	2,120	708,364	13,452
Daily average	614,019	11,288	55,109	2,019	669,128	13,307
YEAR 1927						
1927						
January	651,125	11,405	57,269	2,239	708,394	13,644
February	642,240	11,339	57,269	2,239	699,509	13,578
March	639,862	11,298	58,044	2,272	697,906	13,570
April	649,794	11,323	61,694	2,274	711,488	13,597
May	629,228	11,191	87,683	2,495	716,911	13,686
June	639,381	11,240	86,972	2,496	726,353	13,736
July	623,194	11,279	87,211	2,485	710,405	13,764
August	621,907	11,202	87,211	2,480	709,118	13,682
September	635,483	11,234	71,091	2,457	706,574	13,691
October	627,284	11,242	77,116	2,506	704,500	13,748
November	617,216	11,278	77,116	2,506	694,332	13,784
December	610,930	11,284	78,326	2,526	689,156	13,810
Daily average	632,196	11,276	74,042	2,415	706,238	13,691

PRODUCTION OF CRUDE BY MONTHS—CALIFORNIA OIL DISTRICTS
(Barrels of 42 U. S. Gallons)

Month—	1927 Total Barrels	1927 Daily Average	1926 Total Barrels	1926 Daily Average
January	20,184,872	651,125	19,069,563	615,147
February	17,982,711	642,240	17,163,968	612,999
March	19,835,724	639,862	18,825,786	607,283
April	19,493,825	649,794	18,091,771	603,059
May	19,506,054	629,228	18,667,144	602,166
June	19,181,442	639,381	18,269,417	608,981
Total first half	116,184,628	641,904	110,087,644	608,219
July	19,219,021	623,194	18,742,199	604,619
August	19,279,131	621,907	18,765,080	605,325
September	19,064,500	635,483	18,104,954	603,498
October	19,448,892	627,384	18,966,068	611,808
November	18,516,467	617,216	19,173,128	639,104
December	18,938,823	610,930	20,276,950	654,095
Total last half	114,466,835	622,646	114,029,369	619,725
Total year	230,751,463	632,196	224,117,013	614,019

Month—	1925 Total Barrels	1925 Daily Average	1924 Total Barrels	1924 Daily Average
January	18,743,280	604,622	20,912,500	674,597
February	16,869,832	602,494	19,341,226	666,939
March	18,626,019	600,839	19,913,262	642,362
April	17,959,652	598,655	19,299,849	643,328
May	18,820,328	607,107	19,833,576	639,793
June	19,288,135	642,938	18,807,999	626,933
Total first half	110,307,256	609,598	118,108,412	648,947
July	20,411,049	658,421	19,274,755	621,766
August	21,005,580	677,599	19,112,998	616,548
September	20,062,763	668,759	18,308,233	610,274
October	20,015,076	645,648	18,696,559	603,115
November	19,095,907	636,530	17,767,034	592,234
December	19,249,711	620,958	18,795,126	606,294
Total last half	119,840,086	651,305	111,954,705	608,449
Total year	230,147,342	630,541	230,063,117	628,588

Month—	1923 Total Barrels	1923 Daily Average	1922 Total Barrels	1922 Daily Average
January	16,457,445	530,385	9,717,632	313,472
February	16,426,759	586,670	9,060,382	323,585
March	19,608,192	632,522	10,250,547	330,662
April	20,695,959	689,865	10,186,081	339,536
May	21,535,365	694,689	11,146,193	359,554
June	22,667,106	755,570	10,731,942	357,731
Total first half	117,390,826	648,568	61,092,778	337,529
July	25,262,082	814,906	11,598,291	374,138
August	26,440,005	852,903	11,848,882	383,221
September	25,762,487	858,750	12,205,146	406,838
October	24,576,400	792,787	13,419,432	432,885
November	22,397,848	746,595	14,035,537	467,851
December	21,899,247	706,427	15,426,810	497,639
Total last half	146,338,069	795,316	78,534,098	426,816
Total year	263,728,895	732,545	139,626,876	382,539

GALLONAGE OF THE EIGHT MAJOR GASOLINE DISTRIBUTORS IN CALIFORNIA
(In Gallons)

Company—	First Quarter	Second Quarter	Third Quarter	Fourth Quarter
Standard	52,870,892	69,840,577	70,513,257	62,603,367
Shell	34,261,512	50,948,235	50,570,587	45,611,616
Union	26,369,781	36,882,280	37,565,409	34,824,751
Richfield	21,609,026	34,963,678	33,682,447	29,172,542
Associated	22,164,685	24,136,084	22,213,978	20,663,402
California Petroleum	12,876,180	14,167,481	14,815,194	13,887,129
General Petroleum	7,724,688	8,308,242	8,704,649	7,907,315
Pan American	10,927,121	9,014,353	7,410,753	3,052,566

GAS PRODUCTION FEATURE IN SOUTHWEST TEXAS

(Continued from Page 130)

51 feet. Killam, half way between this and the Mirando Valley oil field on the northeast, got gas at below 1,300 feet.

The Alworth Pool in the west edge of Jim Hogg County, has been flirting between oil and gas as to what it would be. The last well drilled on the south and the biggest and best in the field, has not solved the problem. Looks like it would be both a gas and oil field. The O'Hern & Seacord Pool south of the Cole Field in Duval has finally merged into the Cole Field since wells between have connected them up.

Refugio's New Development

The biggest development in the older fields has been in the Refugio and White Point districts in Refugio and San Patricio Counties. In the Refugio Field late in the year a new sand at 3,300 feet was discovered and five wells in that sand completed by the end of the year had a total of 270,000,000 feet, compared with 531,000,000 feet from 18 wells in the other sands of the field drilled during the year. There were also some shallow sands discovered in the field and while there is one sand in the field that seems to have been ruined in the early days of the field by cratered wells, the field promises to have such a multiplicity of sands that the one spoiled will not be missed. Practically speaking, there are but two operators in the field, the Houston Oil Co. and the Houston Gulf Gas Co. White Point also came into prominence as prophesied by everyone many months ago. It completed 12 wells and 450,000,000 feet of gas coming from three sands in San Patricio County and on the south side of the bay in Nueces in what is called the Saxet Field but probably an extension across the bay of the White Point Field, four wells and 104,000,000 feet of gas.

Another new gas spot found but not developed is the Albercas Pool in Webb County, found by Killam & Maddox. Six wells drilled developed 165,000,000 feet of gas, two of the wells being 3,000,000 and 5,000,000 feet each and one well in the field made 50 bbls. of oil.

There is no end in sight of gas in Southwest Texas. Dunn & Lewis of Tulsa advised the Southern Gas Co. of San Antonio in regard to financing gas pipe lines that the amount of gas in Southwest Texas was such and the day of ultimate exhaustion so far distant, that at the present it need not be taken into consideration at all.

Gas Pipe Lines

Most of the gas pipe lines in Southwest Texas were laid prior to 1927, mostly in 1925, and still more in 1926. Houston Gulf Gas Co. from the Refugio and White Point and Saxet Fields supplies the Houston Gas & Fuel Co., which is the distributing system at Houston, and also supplies Corpus Christi and various industries around Houston. Southern Gas Co. and subsidiaries have a pipe line from the Mirando district through the Grubstake Field in McMullen to San Antonio and supplies gas to the Public Service Co, which is the distributing company in San Antonio. It also owns a line from the Adams gas field in McMullen County to San Antonio and from the Adams Field west to Hondo, county seat of Medina County, and D'Hanis, still farther west in Medina, where a big brick works is supplied. It completed in 1927 a line to New Braunfels supplying that city and a big cement works and to Seguin and all but completed in 1927 a line on from New Braunfels to San Marcos and Austin. Empire Power Corp. of 50 Church Street, New York, through a subsidiary bought all the stock of the Southern Gas and subsidiaries and a controlling interest in the Houston Gas & Fuel and Houston Gulf Gas and will merge these properties in 1928 and plans a big expansion.

Much was done in 1927 and more is brewing in the natural gas business. Houston Oil Co. was one of the first in the field when it discovered the Cartwright gas field in Live Oak County and piped it to the ship channel at Houston and sulphur mines on the coast and then extended the line from Live Oak County to the Cole Field in Duval. Last year on leases acquired from the Cole Petroleum it developed 455,000,000 feet of gas from 16 wells and Cole Petroleum in 11 wells developed 443,000,000 feet. In the Cartwright Field, seven wells and 230,000,000 feet.

During the year the Rio Grande Valley Gas Co. was organized and completed a line from the Mirando Field to the dozen or so cities in the Lower Rio Grande Valley and late in the year a deal was announced to cross the Rio Grande and supply Matamoros. The gas for the Rio Grande Valley Gas Co. line is supplied by the Southern Gas Co.

Border Gas Co., a subsidiary of The Texas Company, was the first natural gas company in Southwest Texas. It supplied gas from the old Reiser and Jennings Fields to Laredo and is still supplying from the Jennings and other fields to Laredo. Late in the year reports while unconfirmed are understood to be authentic that a deal has finally been completed to take gas from the Mirando district across the river to Monterey, Mexico, and supply the big industries there. Border Gas Co. is to be part of that system

Southwest Gas Co., organized to supply gas to Cuero, Yoakum, Gonzales and other thriving cities between San Antonio and Houston, gets its gas supply from the Houston Gulf Gas Co. It has also been purchased by Empire Power Corp. and will be part of the big system.

SOUTHWEST TEXAS FIELDS
Summary of Completions for 1927

District—	Comp.	Prod.	Dry	Gas
Mirando*	291	4,023	123	87
Luling	44	2,027	...	1
Rockdale-Minerva	103	1,754	21	0
Somerset	48	381	3	...
Kingsville	19	662	11	4
Dale	32	3,733	15	...
Adams Gas Field	42	.....	9	33
Refugio Gas Field	27	.....	3	24
Miscellaneous	262	182	209	32
Total for 1927	868	12,762	394	181
Total for 1926	681	85,027	147	118
Difference	187	72,265	247	63

*Includes fields of Duval, Webb, Jim Hogg, Starr and Zapata Counties.

DEVELOPMENT OF A GREAT GAS AREA

(Continued from Page 130)

it is noticeable that the average initial production of the wells exceeded that of 1926. Last year there were 3,711 wells completed in the North and Central Texas territory of which 1,965 were oil wells; 1,646 were dry holes and 100 were gas wells. The oil wells averaged 145.3 bbls. per well in initial production, as against 102.8 bbls. the year before, but the volume of new production was only 285,414 bbls. as against 353,320 bbls. in 1926.

Brown County was the business sector in the area and 899 wells were completed there with a total initial production of 149,260 bbls.

April, with 451 completed wells, was the most active month, and October the dullest with 208 completions. In the whole territory the dry hole percentage was high. Over 44 per cent of the completed wells were dry and only slightly over 50 per cent of the completions were oil wells. This is far below the average for the United States.

The North Central Texas Field, notwithstanding the falling off in development, completed more wells than any other division of Texas, but this is because of the wide area covered by the territory. Oil was developed in 18 out of 28 counties drilled last year. Forty-four dry holes and one gas well were drilled in 10 counties in which no oil was found.

Following is the tabulated result of the year's work:

NORTH CENTRAL TEXAS
Summary of Wells Completed

County—	Comp.	Prod.	Dry	Gas
Archer	491	17,231	260	0
Baylor	4	0	4	0
Brown	899	149,260	289	16
Callahan	142	4,445	93	2
Clay	34	155	24	2
Coleman	85	253	77	13
Comanche	10	55	8	1
Cooke	187	13,118	59	5
Denton	9	0	9	0
Eastland	212	23,743	82	19
Fannin	1	0	1	0
Foard	4	60	2	1
Grayson	5	0	5	0
Hardeman	1	0	1	0
Haskell	6	0	6	0
Jack	108	2,424	43	0
Knox	5	0	5	0
McCulloch	8	0	7	1
Montague	242	6,662	56	11
Palo Pinto	29	298	15	8
Parker	1	0	1	0
Shackelford	247	10,600	129	3
Stephens	71	1,859	30	13
Throckmorton	66	1,913	38	2
Wichita	392	8,361	198	0
Wilbarger	199	12,354	48	1
Wise	5	0	5	0
Young	259	30,735	144	0
Total 1927	3,711	285,414	1,646	100

Completions by Months

Month—	Comp.	Prod.	Dry	Gas
January	275	24,852	147	5
February	394	31,094	151	3
March	398	28,746	150	2
April	451	42,477	178	11
May	306	33,928	133	9
June	279	28,565	116	9
July	328	22,314	163	11
August	226	18,372	118	12
September	217	17,943	111	6
October	208	11,598	98	9
November	308	17,832	158	13
December	241	7,691	123	10
Total 1927	3,711	285,414	1,646	100
Total 1926	5,738	353,320	2,195	108
Difference	2,027	67,906	449	8

TWO POOLS OPENED IN KANSAS DURING 1927

(Continued from Page 166)

Pools of Sumner County were very active last year, and both pools were outstanding achievements of the Roxana Petroleum Corp. which has played an unusually strong hand in exploratory work in that region. Both of these pools are believed to be situated along the axis of a buried granite ridge which extends southwest from the Augusta and Towanda districts of Butler County. The Roxana company has persistently explored both with the diamond core drill and by surface reconnaisance this part of Kansas with the results obtained in the two pools, which have contributed good production at a reasonable depth. It has been remarked that these pools are among the best money makers for their owners in the State. While no exact figures of cost are available to substantiate this claim, the pools have been unusual in matter of production.

At the close of the year, the Oxford Townsite Pool had 41 producing wells which were making 9,600 bbls. per day. The total production of the pool from discovery to the close of 1927 was 855,248 bbls. Oxford was discovered May 30, when the Roxana Petroleum Corp.'s No. 1 Emerich located on Tract 5 west of the Midland Valley railroad on the townsite, found the Stalnaker sand at 2,050 feet, and made 110 bbls. daily.

The Churchill Pool of Sumner County was discovered by the Roxana Petroleum Corp. in August, 1926, when No. 1 Churchill in Section 15-31-2 found a sand immediately above the Stalnaker at a depth of 1,800 feet. This sand is believed to be one of the Hoover group. The first two wells, Nos. 1 and 2 Churchill, made better than 500 bbls. the first 24 hours, No. 1 making 200 and No. 2 making 300 bbls. There were 49 wells drilled as the year 1927 closed and they had a production of 16,000 bbls. The air lift was successfully employed in the Churchill Pool, where the wells are located 660 feet apart, (one well to 10 acres).

KANSAS
Completions by Counties

County—	Comp.	Prod.	Dry	Gas
Butler	187	11,325	72	1
Cowley	116	6,237	43	17
Chautauqua-Elk	90	6,158	28	10
Greenwood	325	19,206	130	5
Lyon	31	1,260	20	0
Marion	33	2,462	25	0
Mitchell	1	0	1	0
Russell	20	894	10	0
Woodson	35	2,350	16	3
Barber	3	0	2	1
Chase	32	50	13	16
Coffey	13	110	9	0
Harper	3	0	3	0
Morris	9	0	6	3
Rice	18	2,561	7	0
Sumner	116	40,048	20	3
Kingman	6	0	6	0
Sedgwick	5	0	5	0
Wilson	2	0	2	0
McPherson	9	0	7	2
Edwards	1	0	1	0
Osborn	1	0	1	0
Reno	12	150	11	0
Miami	138	3,825	71	0
Harvey	2	0	2	0
Saline	3	0	3	0
Allen	8	33	2	5
Anderson	20	895	4	0
Neosho	9	28	2	0
Montgomery	36	378	7	9
Bourbon	1	0	1	0
Franklin	7	45	3	0
Dickinson	5	0	5	0
Barton	5	0	5	0
Geary	2	0	2	0
Ellis	3	0	3	0
Doniphan	1	0	1	0
Rawlins	1	0	1	0
Osage	3	0	3	0
Seward	2	0	2	0
Clark	1	0	1	0
Rooks	1	50	0	0
Hodgeman	1	0	1	0
Pratt	1	0	1	0
Labette	12	178	0	0
Waubansee	1	0	1	0
Crawford	1	10	0	0
Stephens	1	0	1	0
Total 1927	1,333	98,253	569	73
Total 1926	2,338	173,674	784	96
Difference	1,005	75,421	215	17

Summary by Months

Month—	Comp.	Prod.	Dry	Gas
January	134	10,966	60	1
February	114	8,311	55	6
March	151	11,427	62	6
April	154	13,832	58	8
May	105	11,501	40	6
June	112	5,687	56	6
July	163	3,612	91	6
August	55	3,135	32	4
September	78	5,449	25	5
October	82	4,540	26	5
November	137	12,991	45	14
December	48	5,800	19	1
Total 1927	1,333	98,253	569	73

Results in Six Previous Years

Year—	Comp.	Prod.	Dry	Gas
1926	2,338	173,674	784	96
1925	2,003	207,880	636	94
1924	1,125	92,668	396	73
1923	1,405	61,372	535	61
1922	1,640	74,391	497	56
1921	1,380	95,789	353	110

SALT DOMES PROVING RICH OIL RESERVOIRS

Exploration in future will be increasingly directed inward in the search for the vast stores of wealth and resources that are there. Only within a few years have we been learning some highly important details about these interesting insides. Take salt domes. There must be a tremendous amount of salt somewhere in the earth's insides, for over great areas what are called salt domes exist far down under the surface, masses of salt having been pushed up there from still lower areas by the internal pressure. Oil in its migrations through the loose formations encounters these salt masses and, being unable to penetrate them, is held there. Throughout the Texas oil area wherever oil has been found it has been associated with these salt domes. They are so numerous in some areas that as good an authority as Wallace E. Pratt, of the Humble Oil & Refining Co., declares that if a hole 10,000 feet deep could be drilled anywhere in the Texas Gulf Coast area it could logically be expected to produce oil. And Mr. Pratt adds:

"In the Gulf Coast region, outside the salt dome area proper, chances for new discoveries are equally good. Our knowledge of the occurrence of oil in this part of our province is even less complete, and, in spite of a larger past production our exploration has only just begun.

"In the face of these potentialities the hazard of wildcatting in the Gulf Coast region has always been unprecedentedly great. In the Corsicana-Powell area we drilled wells for 25 years before we found at Powell, literally in the midst of our drilling, a reservoir containing almost 100,000,000 bbls. of oil.

"At Spindletop, after a similar lapse of time and effort, we find a 50,000,000-bbl. field within the shadow of the derricks on our old dry holes. In a single township in Oklahoma 50 dry holes had been drilled. This figure, which is equivalent to two dry holes per square mile, has been cited as evidence of the hazard of drilling in Oklahoma.

"At Spindletop, even after the presence of oil had been established, 40 dry holes were drilled on an area of less than one square mile before the recent large production was finally discovered at a comparatively shallow depth.

"There are 51 known salt domes in the salt dome region proper, excluding eight oil or gas fields that may also be related to salt domes, too deeply buried to have been detected as yet. There are 21 additional known salt domes in other parts of the Gulf Coast region, and others undoubtedly are waiting to be discovered. Thirty of the known salt domes have produced significant quantities of oil, among which 14 have made more than 1,000,000 bbls. each. Numerous small leases have yielded 225,000 bbls. an acre. If, as is generally believed, we produced less than one-quarter the total available oil by our present efforts, these salt dome fields are wonderfully rich oil reservoirs."

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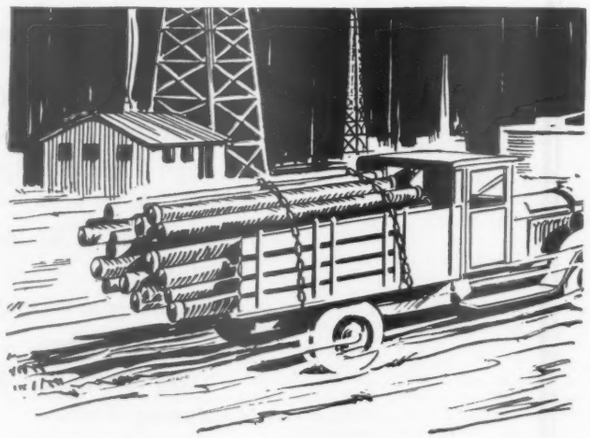

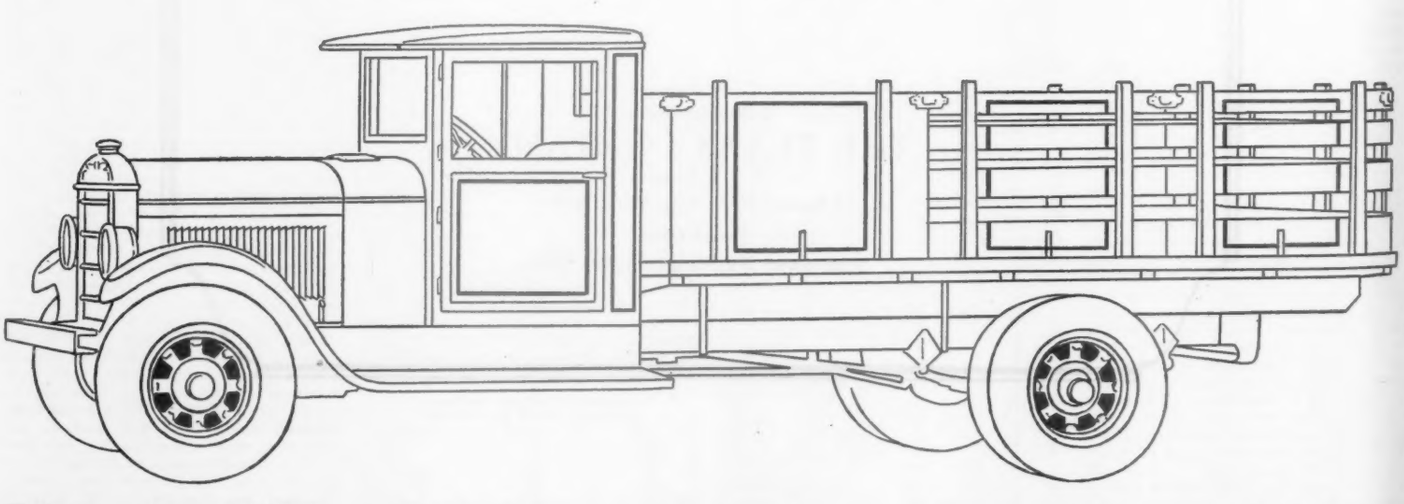

FOR FASTER, SURER, EASIER, CHEAPER HAULING

Wildcatters Anxious to Start Work

Crude Market Price Will Regulate Extent of Exploratory Operations This Year. Plenty of Room for Development

The extent of wildcat operations in the United States this year will depend altogether on the price of crude oil. It is a fact that there never was a time in the history of the business when all wildcat operations were stopped because of the low price of crude. When oil was selling for 15 cents a barrel in Ohio, wildcatters were busy in some other territory and in the flush days of Glenn Pool and Cushing in Oklahoma, with oil being offered as low as 30 cents per barrel, the wildcatter was more or less in evidence in other parts of the Mid-Continent Field. But to stimulate the work of exploring virgin territory on a large scale there must be a market price high enough to give the wildcatter an assurance of a profit if he is lucky enough to find pay sand, and the higher the prevailing price, the more the field work and the more widely scattered it will be.

The market price at the opening of 1928 was no incentive to start a large campaign of exploration, but there existed all over the country where oil is produced a feeling that before the end of spring there would be an improvement in the general market conditions and the owners of hundreds of strings of idle tools were in a hopeful frame of mind.

There is no question of where to go. Every oil-producing state west of the Mississippi River continues to offer prospects of possible oil-bearing areas and oil companies and firms own millions of acres of leases scattered or in blocks in the immense territory from which much of our future oil supply is expected to come.

Good Prospects in Wyoming

Wildcatting in Wyoming will be given considerable impetus in 1928 regardless of the price of crude oil, but if conditions become more favorable, the state may have more test wells drilled than for several years past. There is still a hope that another Salt Creek will be opened up somewhere in the State in spite of failures to accomplish that result in the past. This hope was renewed in 1927 when a discovery was made on the Oregon Basin structure in Park County. There are many who believe that this discovery will open as large a producing pool as was found in Salt Creek, but it is not likely that it will be so valuable because the oil is of a heavier grade and has an asphaltic base and is not in so great a demand. However, the discovery foreshadowed a big wildcat play not only in the vicinity of the pioneer well, but on similar block oil structures throughout the Big Horn Basin. There are a number of structures in that area, some of them comparable with Salt Creek in size, such as the Garland Dome, which will be prospected this year to the Embar-Tensleep horizons on the strength of the Oregon Basin strike. Like Oregon Basin, some of these structures have been tested in the past and gas found in the upper horizons and are attractive prospects in the lower horizons. The wildcatting will extend out from Oregon Basin in all directions where there are known structures and will take in Park, Hot Springs, Washakie, Big Horn, and Fremont Counties. This does not mean that light oil possibilities will be overlooked, as several tests for light oil are scheduled to take place in Fremont and other counties. The Big Horn Basin already is producing black oil from lower horizons in Grass Creek, Hamilton and other pools. The Oregon Basin area will have the advantage of electric power for drilling and this structure already has pipe line facilities while any other discoveries in that region are sufficiently close to existing lines, or railroads to assure marketing facilities for any discoveries of sufficient importance to justify them.

Lincoln, Sublet and other counties in the southwestern part of the State will be more active in 1928 than in the past according to present outlook. Considerable oil was developed in the La Barge Field in 1927 and a pipe line has been assured for 1928. The geological conditions are such that drilling alone can determine where the oil will be found and the wildcatting territory will radiate out in all directions from the producing pool. The testing will extend far up into Lincoln County, and down into Uinta County, and probably will reach over into Idaho. In Sweetwater County several tests will be drilled on the Wyoming side from the Hiawatha Dome gas discovery in Colorado, and a deep test will be drilled on the North Baxter Basin Dome, and a test below the present gas producing horizons on the south dome is being considered. In the northeastern part of the county, drilling will continue on several structures west of the Lost Soldier Field. Further efforts to explore for oil below the gas belt in the Frontier on Billy Creek in Johnson County are scheduled for the year, and the Producers & Refiners will drill a deep test on the Ferris Dome in Carbon County which may make a state record for depth. In the eastern part of the State the principal activity promises to be in Niobrara County on structures in the vicinity of the Ant Hills anticline northeast of Lance Creek, where the Buck Creek Oil Co. opened up a 250-bbl. well the past year. Three or four rigs are working or getting started in that area at present and this number probably will be doubled within the next few months.

Colorado's Wildcat Campaign

Wildcatting in Colorado is expected to go forward in 1928 on a larger scale than in 1927 and over a wider area, but the objective horizons will be, generally, different from those tested in former years. Until early in 1923, the Wall Creek or Frontier sands of Wyoming were looked upon as the most likely horizons and the desultory wildcatting that took place did not seek production in the lower formations, these being considered too deep for practical drilling. No producing fields were found in the Frontier, testing proving that in most instances these sands either were not in place or were not of a suitable character to form reservoirs for oil. With the improvements in drilling equipment making deeper drilling more practical, testing to the Dakota sands, which lie 500 to 600 feet below the Frontier, was undertaken in 1923 and resulted in the opening of the Moffat Pool in northwestern Colorado and the Wellington-Fort Collins Field in northern Colorado. These discoveries were followed by numerous structural tests along the east front of the mountain range and in the large basins, or parks, in western and northwestern Colorado, but were mostly failures with the exception of one discovery by the Continental Oil Co. on the North McCallum Dome in Jackson County, and the opening of some gas wells on the Thornburg Dome in Moffat County and on the Rangely Dome in Rio Blanco County.

In 1927, tests on the Iles and Moffat Domes in Moffat County, disclosed the presence of oil in the Morrison and Sundance sands below the Dakota, and these discoveries not only changed the prospects for encountering oil, but renewed interest in wildcatting. As a result, numerous structural tests are planned in Moffat and Routt Counties for 1928 with the new horizons as the objectives. The areas which will receive attention are not only structures which were tested previously to the Dakota, but domes that were not wildcatted in former years. Among the structures named as most likely to receive tests are the Beaver Creek, Dry Lakes, Skull Creek, Elk Springs, Douglas Creek, Gossard, Williams Park, Trull Creek, Chimney Creek and Pagoda structures. Definite decisions have been made to test some of these domes, while others still are pending. Also, there are several structures in that general region which have been worked out by geologists for the major companies about which little has been disclosed.

It is expected that at least one Sundance sand test will be drilled on the Thornburg, or Morapas Dome, in Moffat County, while the Tow Creek Dome in Routt County, a producer from shale, but a failure in the Dakota, is expected to have a test to the lower horizons. The Rangely Dome in Rio Blanco County, which has gas in several wells in the Dakota and which has been tested to the Sundance in two wells with unfavorable results, will be drilled again in search of the source of the oil found in shale and at shallow depths.

There will be some testing, also, to the Dakota. One of the major companies is scheduled to drill on a new structure in Jackson County, announcement of which has not yet been made, and the Continental Oil Co. will continue testing the South McCallum Dome until it is proven or disproven. There are two other Dakota sand tests under way in that county. It is probable that one or more tests will be drilled to the Dakota, and possibly the Sundance, between the Wellington Field in Larimer County and the Wyoming line, and efforts to prove the Parallel Dome in Boulder County, where two wells now are seeking that horizons, will continue. A few scattered Dakota sand tests between the Parallel and Wellington Domes also are contemplated.

The discovery of gas in the Wasatch formation of the Tertiary age on the Hiawatha Dome in Moffat County has also resulted in several decisions to make Tertiary tests in that region and in Rio Blanco County. One of these to be drilled by the Argo Oil Co. on the Piceance Creek Dome in Rio Blanco County, already is getting under way.

Southeastern Colorado is expected to have its most important wildcat play this year. This territory has not been proven or disproven by the drill and a number of the major companies have large holdings. The Pennsylvanian sands will be the objective in this area. The Phillips Petroleum Co., jointly with the Reiter-Foster Oil Co. and the Texas Production Co., will test the Red Rocks structure in Las Animas County; the Kinney-Coastal Oil Co., will make a Pennsylvanian test in Huerfano County; the Marland Oil Co. is expected to drill at least one well in that region; and several tests now under way are expected to be completed. Since this is new territory, further prospecting will depend to a large extent upon the results in these wells.

In southwestern Colorado there is not much drilling in sight. The Moody Oil Corp. will complete its test in Dolores County to the Pennsylvanian and the General Petroleum Corp. probably will drill a flank well on the Paradox salt structure in Montrose County. A few shallow wells will be drilled in Montezuma and La Plata County, and probably one in Archuleta County.

The Denver Basin, or northeastern Colorado, has two Dakota tests nearing completion and one wildcat near Buick Station in Arapahoe County will be drilled during the year by California parties. Outside of these, there is very little in prospect for that area unless developments at present unforeseen take place.

Southeastern New Mexico

The principal wildcat play in New Mexico is expected to be in the southeastern part of the state in eastern Eddy County and in Lea County in a northwesterly direction from the Winkler County, Texas, Pool. The larger companies have extension holding throughout that region and the drilling requirements on leases and permits insure the putting down of a number of wells. The greatest incentive comes, however, from recent discoveries in the Nos. 1 and 2 Robinson wells of the Texas Production Co. on the eastern side of Eddy County and in the No. 1 Rhoades well of the Texas Production Co. in the southeastern corner of Lea County. Marland Oil Co. is starting a well just to the west of the Rhoades well, and the Midwest Refining Co. and Cecil Bordages are drilling tests in the Hobbs area. The major companies have been using the torsion balance and magnetometer in working out highs, and logs of wells already drilled have been beneficial in giving a better lineup on the trend of the folding. The surface conditions are not very favorable for working out structures and drilling is going to be the best guide. There is considerable land available for the small wildcatter and it is generally believed that there will be an influx of drillers in the early spring months. The prospects for opening a new pool 10 miles southeast of the Artesia Pool, around the Hinkle well, and showings obtained by the Skelly Oil Co. in its Beulah Lynch well and other factors pointing to favorable results when the proper locations are found, will make this the favorite wildcatting ground in the state. Northwestern New Mexico has not developed much of interest in the past year or two from the wildcatters' standpoint, outside of the discovery of the Hospah Dome in McKinley County, but drilling there is shallow and it has attractions for the small operator. Small quantities of oil and gas have been found at various localities in San Juan County, and several deep tests are drilling. The conditions are such that stock-selling companies have found it a profitable area and some of the tests have a good chance for opening up some new productive pools. Wildcatting in other counties is expected to continue on about the same scale as in the past year.

Work in Utah

The extensive wildcatting campaign in southeastern Utah in 1926-27 is not expected to be duplicated in 1928, but there will be considerable testing in other areas. The Utah Southern Oil Co. will drill a flank well on the Cane Creek Dome in San Juan County on the theory that the oil shown in the two tests on the top of the structure may have been trapped outside of the thick salt beds, and is planning to put down a similar test on the Salt Valley structure near Moab. The Union Oil Co. of California, which had encouraging showings on the Lisbon structure in San Juan County, has retained its equipment in the field and may drill another well. South of the salt domes the Continental Oil Co. and affiliated interests will continue the exploration for oil on the Boundary Butte Dome and the Utah Southern hopes to complete its well on the east anticline. The Boulder Knoll Oil & Gas Co. will go ahead with its well near Monticello and one or two other tests in that area are among the possibilities. West of the Moab district, in Wayne County, the Phillips Petroleum Co. will drill a test on the Barrier Creek structure, and the

(Continued on Page 217)

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HUNT FOR SALT DOMES ON THE GULF COAST

(Continued from Page 150)

chiefly by the Yount Lee Oil Co., was centered and where more than 60 tests were put down. The production was tapped in a sand at 3,971-96 feet. A second test in this same district is now down to this sand.

Roxana Petroleum Corp. drilled one test on its new White Castle Dome in the southwestern part of Iberville Parish, Louisiana, and encountered a rich appearing oil sand at 1,580-89 feet. The well bailed salt water but this was blamed on faulty casing setting and as this is written efforts are being made to make an oil well.

Active on Lost Lake Dome

Pure Oil Co. discovered a new dome at Lost Lake in Chambers County, Texas, and by the close of the year had its first test down 2,900 feet. Derricks were up for five other tests, promising this district an active drilling play for 1928. Humble Oil & Refining Co. discovered a prospective dome at DeWalt, Fort Bend County, Texas, and is drilling its first test. The actual location of the dome is accredited to H. C. Cochran, but the Humble company has leased the acreage.

Humble Oil & Refining Co. also has a new dome, known as the Brookshire Dome, in the southwest corner of Waller County. This also was located through geophysical operations of the year, but no drilling for oil has been done as yet. This is northwest of Pattison which is 6 miles west of Brookshire.

Two other prospective domes were located in Waller County. One is near San Felipe on the west side of the Brazos River near what is known as McDowell's ferry. It is held by the Gulf Production Co. The other is on the Young ranch and adjoining land approximately 10 miles north of Pattison.

Louisiana Land & Exploration Co. located three prospective domes in southern Louisiana. These are Calcasieu Lake in Cameron Parish, Sister Lake in Terrebonne Parish and Cypremort Point in Iberia Parish. None of these has been prospected although a test is under way at Calcasieu Lake Dome.

Gulf Refining Co. of Louisiana worked out a new saline dome on Bayou Choctaw in Iberville Parish through the use of the seismograph. This dome is 30 miles west of the Sorrento Dome of Ascension Parish, on which the Gulf had a blowout in its first test last June. Gulf is drilling its fourth test on the Sorrento Dome on the United Land Co.'s lease.

Nine New Domes in Small Radius

Within a 60-mile circle in central and southern Louisiana there are nine new saline domes, discovered either during 1927 or during the latter part of 1926. These are estimated to add 35 per cent to the potential reserve territory. These domes are: Darrow, Sorrento in Ascension Parish, Lutcher in LaFourche Parish, Grassette in Baton Rouge Parish, and Bayou Choctaw, Iberville, all found by the Gulf; Bayou Blue Dome, Iberville Parish, held by the Union Sulphur Co.; Bayou Henry, and Bayou DeGlaise, Iberville Parish, held by the Union Sulphur Co. and the Standard Oil Co. of Louisiana; and White Castle, Iberville Parish, held by Roxana.

The past year also was marked by the tapping of the first oil at Raccoon Bend Dome of Austin County by the Humble Oil & Refining Co. This first well, No. 2 Thompson, was completed in April at 1,007 feet pumping 33 bbls. daily. No. 1 Walton previously had been completed as a gasser at 1,100 feet. Humble has two other tests drilling.

Humble continued to prospect on the old Hockley Dome in Harris County which has been worked on for nearly 20 years without the finding of any appreciable showing of oil. The present drilling test is on the southwest flank, being operated jointly by the Humble and the Marland Oil Co.

Union Sulphur Co. brought in a 1,200-bbl. well at Sulphur Dome, Calcasieu Parish, long operated by that company as a sulphur deposit. This was the second well, the first making only 150 bbls. on the pump. Both wells, however, soon stopped production and now there is no oil output from that dome.

Pure Oil Co. also caused considerable interest at Sweet Lake, when in December, just before the close of the year, it finished working over its Sweet Lake discovery well for 500 bbls. of oil daily. This well later was opened and flowed 1,000 bbls. daily. The first week of this year it averaged 765 bbls. daily.

Deep Drilling at Sweet Lake

Sweet Lake production was discovered in October of 1926 but at the excessive depth of 5,897 feet, making this well one of the deepest producers in the Gulf Coast district. Sweet Lake later in October got its second well but both wells sanded up and for several months there was no production from that field. Two other Sweet Lake tests are drilling near the pay level and a third is standing.

Operations in most of the older fields were confined chiefly to working over the old wells or deepening them to known lower sands. However, a few entirely new deeper sands were tapped and some footage extensions were made in shallower sands of several fields.

At Spindletop, the deep sand extension, discovered the latter part of 1925 to the south and southwest of the old caprock field which had produced since 1901, still is being extended gradually to the north along the west flank of the dome. During the past year this new deep sand produced some very prolific wells which told their story in substantial increases in production of that field. Efforts now are being made to test out more thoroughly the northeast flank of the dome and one test is drilling there.

In July, Harrison Oil Co. found a deep producing sand on the south of the old Dayton Pool in No. 1 Quintette which started flowing 500 bbls. daily of 34.6 gravity oil from a total depth of 4,170 feet. This was the first deep test drilled in the old Dayton Field which has been the scene of prospecting work for 20 years. The well was on the south of the old shallow sand production slightly away from where millions of dollars had been spent in wildcatting on the east and southeast flanks.

The Dayton deep sand since then, however, has had no new favorable developments with the second Quintette test being abandoned temporarily at 4,594 feet. The Dayton Pool is 7 miles west and north of the South Liberty-South Dayton Field which has received interesting play in the past.

Pierce Junction Extended

The Pierce Junction Field, just south of Houston, has received some important footage extensions in the deep sand on the northwest flank. The principal activity at present is on the northwest, although several good wells were brought in on the old east side during the year. One of the latest developments at Pierce Junction is in Gulf Production Co.'s No. 1 Perry, which is believed to have found an entirely new deep sand below 5,400 feet.

Gulf Production Co. and several others made efforts earlier in the year to develop extremely deep sands on the southwest flank of Sour Lake, Liberty County, but that district is inactive at present. These sands run as low as 5,000 feet.

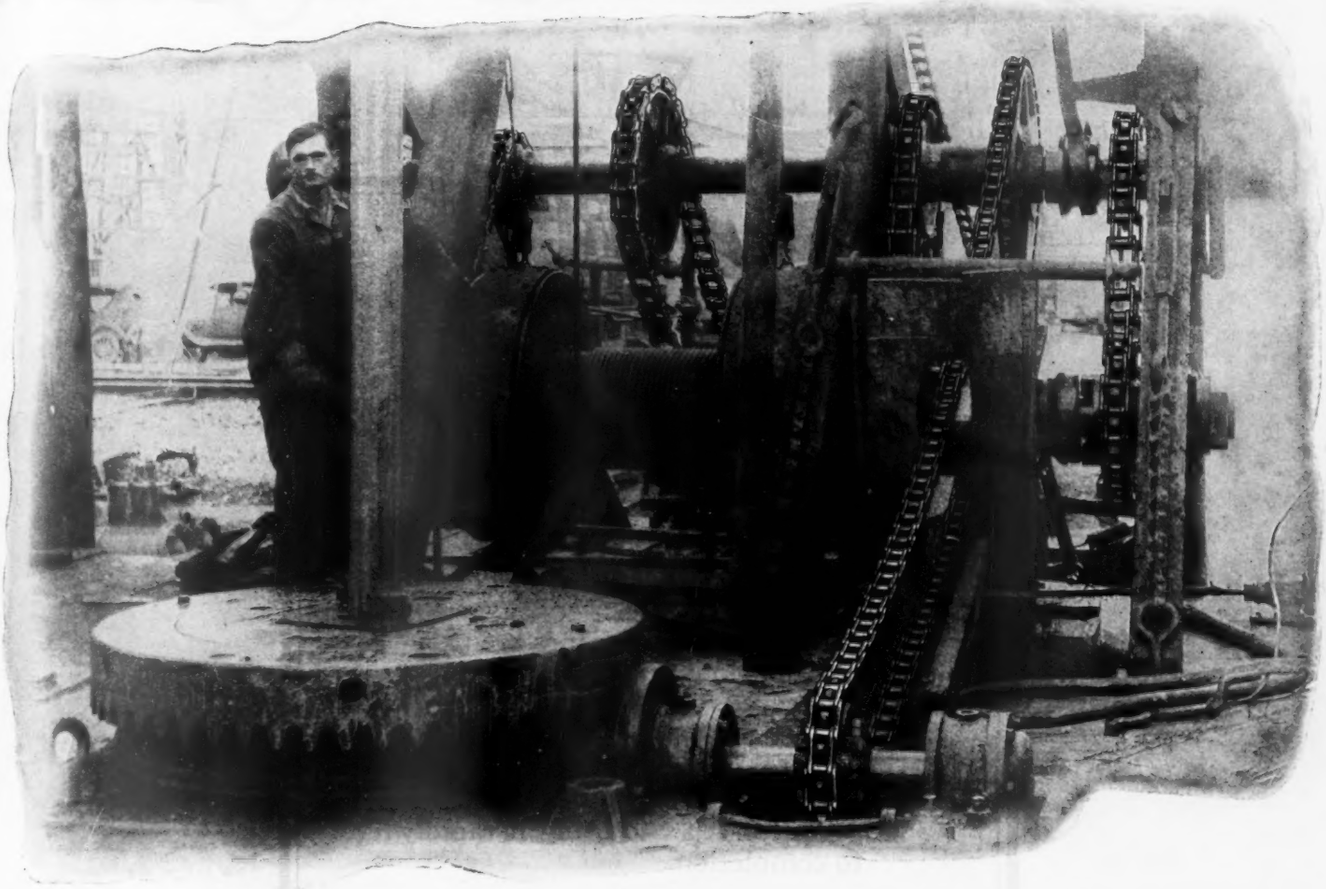
There was some increased activity at Blue Ridge and Big Creek, Fort Bend County, and a number of big wells were completed in the former field. Both fields reflected substantial gains in production. The Lockport Field, south of Lake Charles, Calcasieu Parish, Louisiana, also was fairly active during the year, with 38 completions, only 4 of which were dry. The entire field is owned and operated by the Gulf Refining Co. and the Vacuum Oil Co. jointly.

Several good wells were completed on the north side of the old Edgerly Field, Calcasieu Parish, giving that district some new life during the first half of the year and some drilling still is going on there to find that production. The northwest side of the Jennings Field, Acadia Parish, also came into the limelight with the finding of new shallow production at a shallow depth of 1,600 feet.

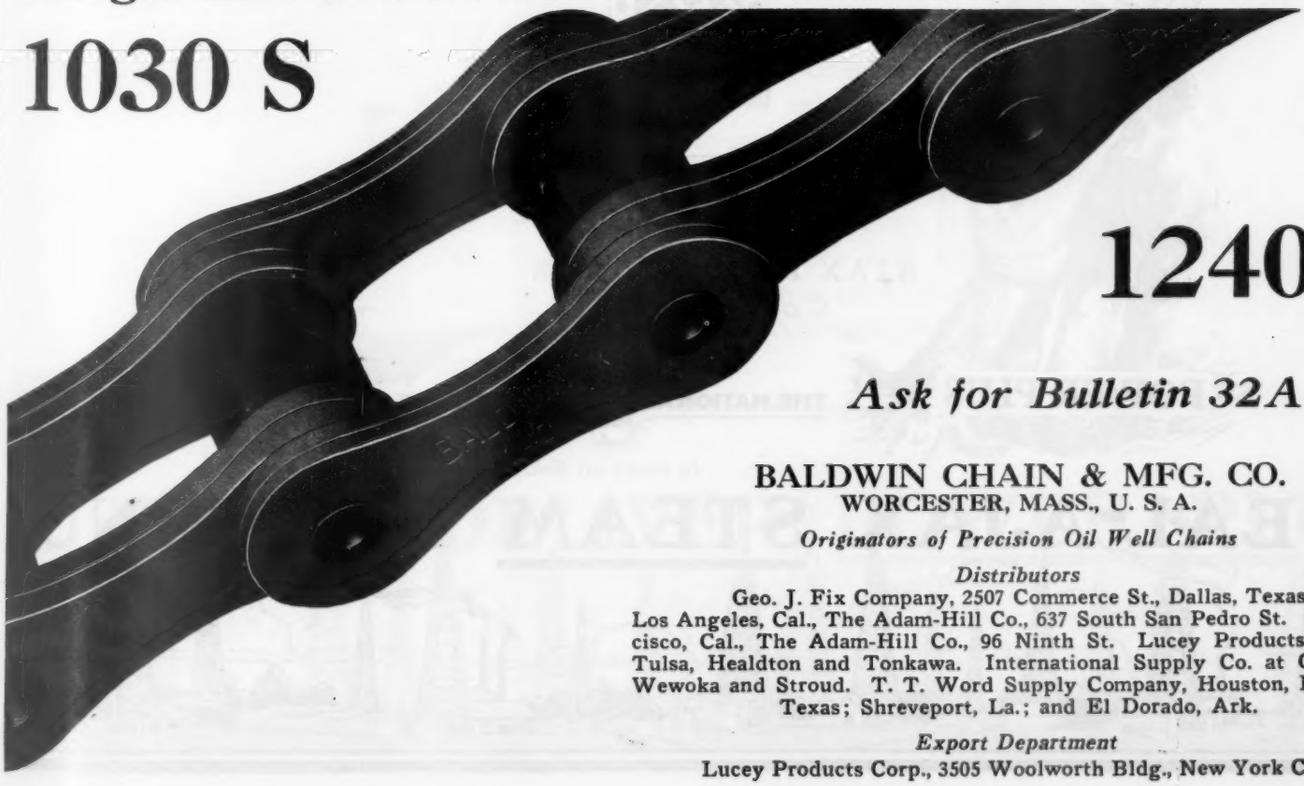
The Texas Company continued its efforts to find a deep sand to the north-

Baldwin Precision Oil Well Chains

Pins and Bushings Ground to Exact Size



Longer Life and Fewer Shutdowns in Actual Operation



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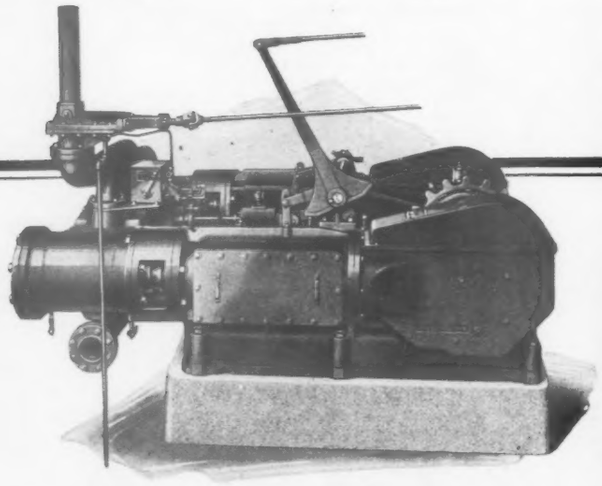

WELLS drilled to 6000′ or more make new demands on the power unit.

Low-powered engines are proving inadequate for operation at this depth.

Ajax Engines are capable of developing up to 600 horse power. No well is too deep, no task is too great for Ajax to bring it rapidly to completion.

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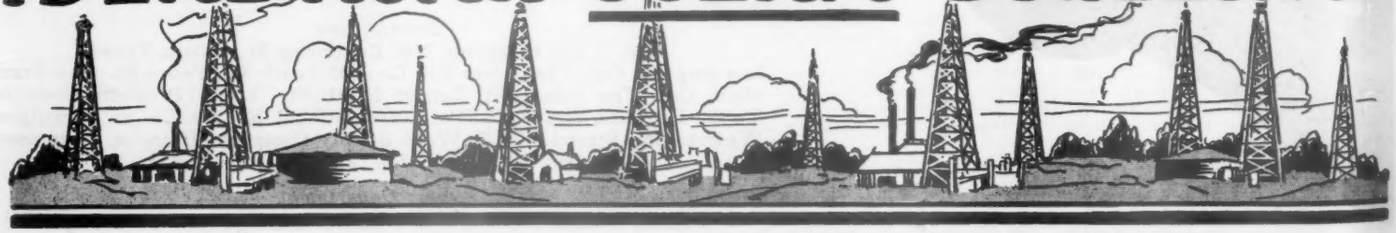

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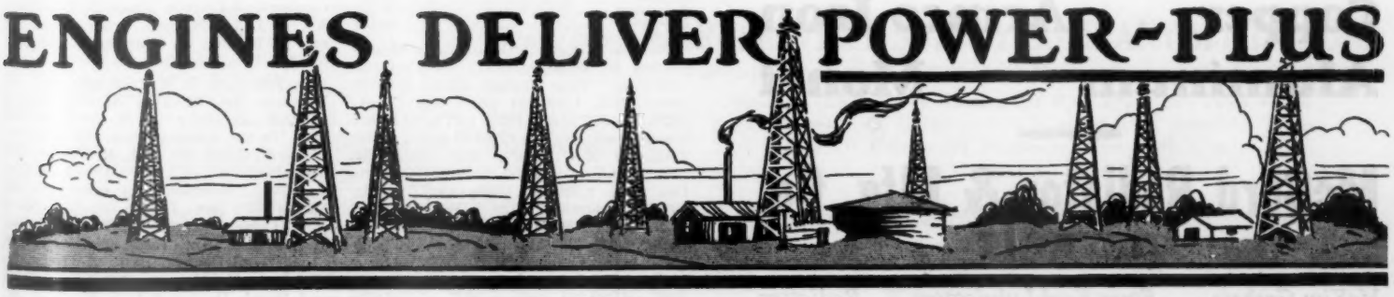
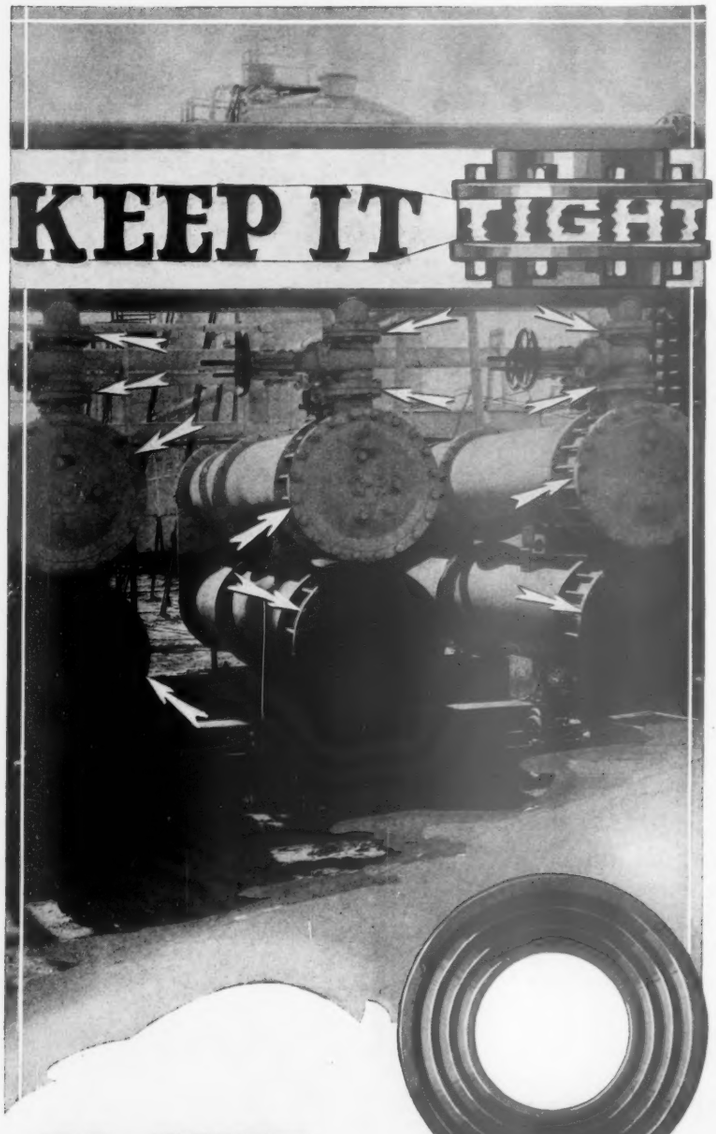
WELLS sunk to the depth of a mile are no longer unusual. Greater power is needed for drilling to this depth. Old engine ratings are no longer adequate.

More and more, high-powered Steam Drilling Engines are coming into favor. Ajax Engines for cable work and Ideal-Twin for rotary drilling have given the industry new standards of drilling engine performance.

They will develop ample power for drilling to any depth.

ENGINES DELIVER POWER-PLUS





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west of the shallow sand production at Batson, western Hardin County, and the Gulf Production did the same on the north side of the Humble Field, Harris County. The latter drilled a hole east of the present deep sand production. Efforts to find a deeper pay on the north side of the San Jacinto River on the north also were fruitless. Dunbar Oil Co. (Transcontinental Oil Co.) also abandoned a test to the north of the Humble Field after hitting salt.

Developing Sulphur Deposits

The most active spot the latter half of the year was in the Boling shallow district of Wharton County but Boling has turned out largely a sulphur proposition and drilling there has been chiefly to develop these deposits rather than prospect for oil. Because of this the Gulf Production Co., one of the principal operators there, has turned over virtually all its holdings to the Texas Gulf Sulphur Co. to develop, retaining oil rights.

A great number of shallow tests ranging depth around 1,000 feet were drilled on top of the caprock section. Previously there had been much development on the south, east and west flanks. Tests to the west, northeast and southwest have been failures and have shown the salt mass to extend 5 miles east and west.

The Sun Oil Co. still is attempting to find oil on the northeast flank of the dome across the Colorado River in Fort Bend County.

The Long Point Dome of Fort Bend County also has turned out more of a sulphur deposit, but the Gulf Production Co. continues to prospect for oil sands and recently started drilling two additional tests.

Production of Notable Pools

The Gulf coastal fields produced 54,174,086 bbls. of crude oil in 1927, or 5,367,511 bbls. in excess of its production of 1926 and 19,323,511 bbls. more than the same pools produced in 1925. The Spindletop area, which produced only 420,823 bbls. in 1925, was largely responsible for the big increase over the production of that year, as Spindletop, after the discovery of the first of the series of deep sands by the Yount Lee Oil Co. in November, 1925, yielded 14,838,281 bbls. in 1926 and 21,264,935 bbls. in 1927 and was going strong at the rate of over 50,000 bbls. a day when 1928 opened.

It was not until July, 1926, that Spindletop began to produce largely in which month it averaged 29,390 bbls. a day. It hit the peak in September with a daily average for the month of 93,217 bbls. The record of the pool from the time the first deep sand production was found up to the close of 1927 was as follows:

	Daily Av. Bbls.
1925—	
November	1,201
December	1,135
1926—	
January	3,372
February	5,184
March	2,642
April	2,839
May	6,587
June	4,425
July	29,390
August	78,162
September	93,217
October	82,786
November	85,677
December	90,880
1927—	
January	81,750
February	69,130
March	60,075
April	51,000
May	54,150
June	60,525
July	54,155
August	54,144
September	56,912
October	52,157
November	50,747
December	54,694

Notable changes in the quantity of production in 1926 and 1927 included the following: Blue Ridge, 1926, 478,076 bbls.; 1927, 1,264,621 bbls.; Big Creek, 1926, 558,252 bbls.; 1927, 1,277,632 bbls.; Goose Creek, 1926, 1,679,449 bbls.; 1927, 2,931,736 bbls.; Hull, 1926, 7,242,551 bbls.; 1927, 5,914,333 bbls.; Lockport, La., 1926, 1,530,946 bbls.; 1927, 2,026,757 bbls.; Orange, 1926, 3,759,743 bbls.; 1927, 1,877,190 bbls.; Pierce Junction, 1926, 1,041,723 bbls.; 1927, 3,163,585 bbls.; Sour Lake, 1926, 2,226,721 bbls.; 1927, 1,647,731 bbls; South Liberty, 1926, 2,089,391 bbls.; 1927, 1,102,830 bbls.; Vinton, La., 1926, 2,250,847 bbls.; 1927, 1,948 095 bbls.; West Columbia, 1926, 3,366,892 bbls.; 1927, 3,459,220 bbls.

The slower development during 1927 is indicated to some extent by accompanying table which shows that 107 fewer wells were completed or abandoned than during the previous year. In addition, a greater percentage of the completions during 1927 were old wells worked over after they had sanded up or quit producing for other causes.

Among the fields which reflected particular increases in the number of completions or abandonments were Blue Ridge, Big Creek, Pierce Junction of Texas and Edgerly and Lockport of Louisiana. A total of 1,145 wells were completed or abandoned during the year. Tests failing to find production amounted to 465.

Total flush daily production of the wells completed was 521,595 bbls. or 716,695 bbls. less than during 1926.

Completions in the coastal territory by fields and also by months during 1927 follow:

GULF COAST
Completions by Districts

District—	Comp.	Prod.	Dry	Gas
Boling	82	4,044	60	0
Batson	40	906	17	0
Blue Ridge	59	32,080	15	0
Big Creek	27	28,785	4	0
Barbers Hill	18	6,526	5	0
Dayton	2	500	1	0
Edgerly (La.)	30	15,097	6	1
Goose Creek	41	4,445	13	0
Humble	17	3,585	10	0
Hull	84	36,196	20	0
High Island	9	1,430	6	0
Jennings (La.)	33	1,808	15	1
Lockport (La.)	38	30,745	4	1
Markham	15	1,045	5	2
Nash	*12	3,550	3	0
Orange	52	11,828	10	0
Orchard	3	2,300	2	0
Pierce Jct.	79	69,110	11	3
Spindletop	180	239,855	51	0
Saratoga	11	88	4	0
Sour Lake	27	4,844	6	0
South Liberty	24	3,445	7	0
Starks (La.)	6	2,700	3	0
Vinton (La.)	39	6,220	10	0
West Columbia	7	3,110	3	0
Miscellaneous	210	4,854	174	8
Total, 1927	1,145	521,596	465	16
Total, 1926	1,252	716,695	430	0
Difference	107	195,099	35	16

*30,000,000 feet of gas.

Completions by Months

Month—	Comp.	Prod.	Dry	Gas
January	91	68,006	20	1
February	118	58,200	46	1
March	100	47,014	41	3
April	107	58,060	38	0
May	98	51,375	45	1
June	88	39,345	34	4
July	79	30,190	35	0
August	50	23,135	18	0
September	94	37,453	40	1
October	95	45,326	40	2
November	97	32,646	41	1
December	128	30,846	67	1
Total, 1927	1,145	521,596	465	16
Total, 1926	1,252	716,695	430	0
Difference	107	195,099	35	16

WESTERN KENTUCKY ENJOYED BUSY YEAR

(Continued from Page 160)

ren County, on the western side of the state. Sampson, Norris Brothers & Co., found a 50-bbl. initial production in a test on the Browning farm, near the Lecta Pool, same county. Leeper Oil Co. drilled a wildcat on the John Roby farm, southwest of Pellville and in Daviess County, which started at 25 bbls. at 488 feet, which was the original well of what is known as the Roby Pool. In the Ambrose Pool, Ohio County, James C. Ellis' No. 4 J. R. Weller showed 100 bbls. at 638 feet. In the Crocus Creek District, Cumberland County, Baird & Hickman's No. 4 J. H. Morgan, produced at the rate of 16 bbls. an hour, estimated good for 350 bbls., the first 24 hours.

In February, in Warren County, J. H. Wright's No. 11 Tutt Stovall, showed 40 bbls. naturally in 24 hours at 520 feet. In the Ambrose Pool, Ohio County, James C. Ellis' No. 4 J. R. Weller, 250 bbls. initial at 662 feet; Creek Drilling Co.'s No. 2 Ambrose heirs, same pool, 250 bbls. at 638 feet; Leeper Oil Co.'s No. 4 J. S. Colyer 100 acres, 100 bbls. initial at 553 feet. In Crocus Creek District, Cumberland County, Baird & Hickman's No. 5 J. H. Morgan, 300 bbls. initial, and Wood, Haislet & Co.'s No. 8 G. W.

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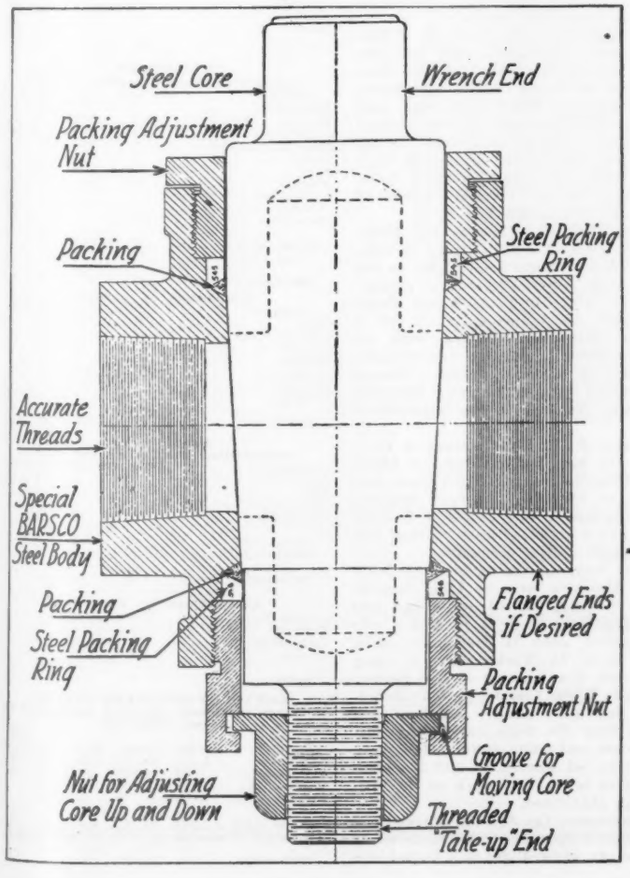
—unbreakable parts——no replacements

This is the "stop cock" that the oil field has long wanted. It has a longer life—requires no replacement of parts and can be kept in service longer than other types of plug valves. Ordinary valves or stop cocks seldom last thru-out one installation—while in comparison and on actual service test several BARSCO stop cocks have been put in use and reused on up to six well installation and are still in steady service at this writing.



Here are a few important BARSCO features:

(1)—Adapted for steam, water, gas, oil or air and *especially for Rotary Slush Pumps.*

(2)—Made in sizes of 1¼", 1½, 2", 2½", 3" and 4".

(3)—No grease to collect dirt, form scale and cause sticking.

(4)—Specially designed packing in both ends.

(5)—Fifteen (15) ton lift on core, 14" wrench, positive operation—no hammering.

(6)—One quarter turn of wrench to open and close.

(7)—Core (or plug) can't break or stick.

(8)—Made of special "BARSCO" steel—indestructible.

(9)—Pressure—2000 lbs., safety factor to meet all requirements.

(10)—Can be packed under pressure, open or closed.

(11)—Original installation only—no removal for upkeep.

(12)—First cost is your only cost. Unbreakable parts—no replacements.

Write for details and prices—today.

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Drive Shoes	Anchor Clamps	Rotary Tool Joints
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Write for complete catalog.

Brockman, same field, 100 bbls. initial, at 293 feet.

In March, in the Ambrose Pool, Ohio County, Julius C. Miller's No. 3 Ambrose heirs, started at 150 bbls. naturally at 629 feet; No. 4, same lease, 250 bbls. at 631 feet and No. 5 same lease, 350 bbls., at 671 feet. James C. Ellis' No.'s 5 and 6 J. R. Weller 110 acres, same pool, 150 bbls., each and No. 7 with an initial of 225 bbls. at 618 feet. Ohio Oil Co.'s No. 1 Romney Taylor farm, west side of same pool, 50 bbls. at 708 feet. In Clinton County, on Wolfe Creek, McClintock, Reed & Heckathorn's No. 6 Pierce Brothers lease, 150 bbls.

In April, in the Ambrose Pool, Ohio County, James C. Ellis' No. 8 J. R. Weller 110 acres started at 125 bbls. at 621 feet; No. 9 same lease, 150 bbls. at 704 feet, and No. 10 same lease, 175 bbls. at 631 feet. Julius C. Miller's No. 6 Ambrose heirs, 200 bbls. at 711 feet. Rex-Pyramid Oil Co.'s No. 3 Scott Ambrose lease, 100 bbls. at 621 feet. Ohio Oil Co., No. 2 Rodney Taylor 50 acres, 125 bbls. at 729 feet. Wood Oil Co.'s No. 1 Mary J. Elmore 100 acres, 200 bbls. at 741 feet.

In May, in Barren County, the Sanson Oil Co.'s test on the Loden farm, in advance of the Lecta Pool proper, showed an initial of 100 bbls., from the Blue sand. In the Ambrose Pool, Ohio County, Rex-Pyramid Oil Co.'s No.'s 5 and 6 Scott Ambrose, 125 bbls. each at 642 and 662 feet; James C. Ellis' No.'s 11, 12 and 13 J. R. Weller, 100, 175 and 125 bbls.; Ohio Oil Co.'s No.'s 3 and 4 Rodney Taylor, 175 and 200 bbls.; Rex-Pyramid Oil Co. No. 2 Lake-Ambrose 78 acres, 160 bbls.; Wood Oil Co. No.'s 2 and 3 Mary J. Elmore, 160 and 190 bbls.; Creek Drilling Co. & Hapgood, No. 1 George Early 79 acres, 115 bbls. at 699 feet. In Clinton County, McClintock, Reed & Heckathorn's No. 7 Pierce Brothers, Wolf River Field, 125 bbls. initial at 535 feet.

During June, in the Ambrose Pool, Ohio County, the Ohio Oil Co.'s No.'s 5 and 6 Rodney Taylor 50 acres made 200 bbls. and 75 bbls., respectively, the first 24 hours; Rex-Pyramid Oil Co.'s No.'s 7, 8, 9 and 10 Scott Ambrose, 120, 110, 80 and 60 bbls. respectively; James C. Ellis' Nos. 14, 15 and 16 J. R. Weller 110 acres, 140, 160 and 175 bbls. initial production; Wood Oil Co.'s No.'s 4, 5, 6 and 7 Mary J. Elmore, 75, 125, 100 and 175 bbls. initially; Lee & Engle's No. 3 J. I. Bartlett 100 acres, 100 bbls., No. 4 same farm, 80 bbls.; Creek Drilling Co.'s No. 2 dry, and No. 3 185 bbls. In Daviess County, Roby Pool, Thompson & Tremor, No. 1 J. M. Miles 57 acres started at 75 bbls. at 507 feet.

In July, the Mid-Southern Oil Co.'s No. 11 on the General Wood 2700-acre ranch in the Gainesville Field, in northeastern Allen County, showed 100 bbls. at 250 feet. In the Ambrose Pool, Ohio County, James C. Ellis' No.'s 17, 18, 19, 20, 21, 22 and 23 J. R. Weller 110 acres, were rated at 200, 150, 90, 140, 150, 100 and 75 bbls., respectively, the first 24 hours. Creek Drilling Co.'s No.'s 4, 5, 6 and 7 Sally Early 112 acres, 200, 200, 125 and 150 bbls. initial production. The Ohio Oil Co.'s No.'s 7 and 8 Rodney Taylor 58 acres, 200 bbls. initial each. Wood Oil Co.'s No.'s 8, 9 and 10 Mary J. Elmore 100 acres, 180, 150 and 125 bbls.

During August, S. E. Silverthorn's No. 4 W. H. McGinnis farm, south of Bowling Green, Warren County, showed 60 bbls. natural initial production at 470 feet. In the northeastern part of Allen County, Gainesville Field, the Mid-Southern Oil Co.'s No. 10 General Wood 2700 acres, was good for 360 bbls. initial production at 447 feet and S. W. Loman & Co.'s second well on 112 acres of the General Wood big farm, showed 200 bbls., No. 1 was a dry hole. This territory proved very spotted. In the Lecta Pool, in Barren County, the Sanson Oil Co.'s No. 2 on the Loden started at 100 bbls. In the Ambrose Pool, in Ohio County, the Creek Drilling Co.'s No.'s 8 and 9 Sally Early 112 acres, started at 225 and 250 bbls.; Ohio Oil Co.'s No. 9 Rodney Taylor 58 acres, 150 bbls.; same company, No. 1 D. A. Gray 80 acres, 150 bbls. Same company's No. 8 Ellis & Heflin 204 acres, 143 bbls.; Wood Oil Co.'s No.'s 11 and 12 Mary J. Elmore 100 acres, 200 and 100 bbls. Creek Drilling Co.'s No.'s 4 and 5 Fannie Lake 100 acres, 340 and 275 bbls. James C. Ellis' No. 25 J. R. Weller 110 acres, 175 bbls., and No. 24 at 100 bbls. Daugherty & Co. No. 1 Cora Wells 130 acres, 250 bbls.

In September, in the Ambrose Pool, in Ohio County, the Wood Oil Co.'s No.'s 13, 14, 15 and 16 Mary J. Elmore, started at 100, 120, 200 and 302 bbls.; Ohio Oil Co.'s No.'s 2, 3 and 4 D. A. Gray 80 acres, all dry holes; Creek Drilling Co.'s No.'s 6, 7, 8 and 9 Fannie Lake 100 acres, 200, 250, 200 and 250 bbls.; Daugherty & Co.'s No.'s 2, 3 and 4 Cora Wells 130 acres, 225, 275 and 250 bbls. initial; same parties, No. 1 Hill Rhodes, 150 bbls. initial. Daly & Loman's test on the Ollie Ezell 130 acres, northwest of the Ambrose Pool, near Bell's Run, 30 bbls. initial at 773 feet.

New Deep Sand Pool?

During October, in the Ambrose Pool, Ohio County, the Creek Drilling Co.'s No.'s 10 and 11 Fannie Lake 100 acres, 150 and 200 bbls. initial. Daugherty & Co. No. 2 Hill Rhodes 150 acres, 100 bbls. initial; same parties, No.'s 5 and 6 Cora Wells 130 acres, 200 bbls. each initial. Daly & Loman No. 2 Ollie Ezell 130 acres, 100 bbls. initial. Wood Oil Co.'s No.'s 17 and 18 Mary J. Elmore 100 acres, 200 bbls. initial each. James C. Ellis' No. 1 J. R. Weller No. 2 farm, dry. In the Sunnydale Field, Ohio County, Earl Patton's No. 3 Mary E. Wilson, 100 bbls. initial at 450 feet. Ohio Oil Co.'s No. 1 J. H. Davis, west of Ambrose Pool, 100 bbls. initial at 728 feet. In Clinton County, Wolf River Field, McClintock, Reed & Heckathorn's No. 10 Pierce Brothers, 100 bbls. initial. In McLean County, 15 miles in advance of production, Dimmick Brothers' wildcat on the John Ratliff, near Livia, struck top sand at 1,410 feet and went 30 feet in the sand to a total depth of 1,440 feet, the well doing 110 bbls. initial and opens what looks like a new deep sand field.

250-Bbl. Wildcat

During November, in the Allen County area, near Gainesville, the Mid-Southern Oil Co.'s No. 18 on the General Wood 2,700 acres, had an initial of 90 bbls. at 248 feet. In the Ambrose Pool, Ohio County, the Creek Drilling Co.'s No. 12 Fannie Lake 100 acres, 200 bbls. initial; same company's No. 1 Bartlett heirs 100 Wells 130 acres, 250 and 40 bbls. initial; same parties, No. 3 Hill Rhodes 150 acres, 300 bbls. initial; same parties No. 9 Cora Wells, 150 bbls. initial. Wood Oil Co.'s No.'s 19 and 20 Mary J. Elmore 100 acres, 100 and 75 bbls., initial; same company's No. 2 J. C. Ralph, 100 bbls. James C. Ellis's No. 3 Spence Bartlett, 100 bbls. Cumberland Petroleum Co.'s wildcat on Bob Hamilton 350 acres, between the Ambrose Pool and Sunnydale Field, southeast from the Ambrose Pool, Earl Patton's No. 4 Mary E. Wilson, started at 100 bbls.; same owners' No. 5 Mary Wilson, 100 bbls.; Wood Oil Co.'s No.'s 2, 3 and 4 J. C. Smith, 150, 100 and 100 bbls.; Jordan, Short & Co.'s wildcat on the Gilbert Jolly farm 2 miles or so west of Buford, in Ohio County, was reported showing better than 50 bbls. initial production. Ohio Oil Co.'s test on the Lawrence F. Roby 87 acres, northwest from the Roby Pool, 50 bbls. initial. In Daviess County, Green River Oil Co. drilled a dry hole at 1,253 feet on the John Potigue lease, 2 miles northwest of Mammoth Cave.

In December, in the Ambrose Pool extension, Young & Lee's No. 2 Ollie Ezell 80 acres, near Bell's Run, started at 125 bbls., at 739 feet; James C. Ellis' No. 2 J. R. Weller No. 2 lease, near Mount Moriah Church, Ohio County, 100 bbls.; Creek Drilling Co.'s No. 3 Bartlett heirs, Ambrose Pool, 125 bbls.; Daugherty & Co.'s No.'s 4 and 5 Hill Rhodes 150 acres, Ambrose Pool, 150 and 125 bbls.; Creek Drilling Co.'s No. 2 Bartlett heirs, 200 bbls., and No. 13 Fannie Lake 100 acres, 100 bbls. In the Mt. Moriah Church area, Ohio County, the Cumberland Petroleum Co.'s No. 2 Bob Hamilton 350 acres, made 200 bbls. the first day. James C. Ellis' wildcat on the Bud Hoagland, 3 miles south of Taffy, Ohio County, 150 bbls., with 35 feet of pay sand. In the Sunnydale Field, same county, Wood Oil Co.'s No.'s 2 and 3 J. C. Ralph 21 acres, 100 and 75 bbls. initial; same company's No. 1 R. A. Duke 200 acres, same field, 100 bbls. Globe Oil Co.'s wildcat on the Vincent J. Steele Chicken farm, at Buford, several miles west of the Ambrose Pool, and something like a couple of miles east of the Gilbert Jolly farm well, in Ohio County, is reported good for 25 bbls. initial, widening out the Ohio County Field quite a distance east and west. In Daviess County, near Utica, about 2½ miles north of the Ohio County line, and a wildcat that has caused the dealing in much leasing and sales of royalty interest, connected to pipe line of the Illinois Pipe Line Co., was rated at better than 250 bbls. initial production. A wildcat in Union County, west of the Daviess County production and southwest of Corydon, drilled by F. E. Black & Co., on the R. H. O'Daniel land, is rated as good for 10 bbls. initial at 637 feet in depth, opening something new for that part of the Blue Grass State.

Tennessee

Spasmodic spurts were made in development work in the Tennessee Fields during almost the entire season of 1927, although some good wells were found in Clay and adjoining counties.

In February, a wildcat well on the James Arms lease, on the west side of the river from the Peterman Bend Field, in Clay County, Clark, Handen & Munson got a 35-bbl. well at 150 feet under the Pencil Cave formation. Eight miles northeast of Cookville, in the Spring Creek Pool, George H. Clark's test on the Moore lease was reported good for 50 bbls. the first 24 hours in the Upper Sunnybrooke sand at 300 feet.

During March, the Cumberland Oil & Gas Co., drilled in a 200-bbl. initial producer on the Narton Langford lease, a mile west of the discovery well, drilled by John H. McClurkin, reported at 200 bbls. initial at 490 feet and under the Cave formation. In the Clark Pool also in Clay County, the Clark Hill Oil Co.'s well on the Gray lease was reported at 200 bbls. the first 24 hours.

In April, the Ohio Oil Co.'s No. 2 Pennington farm, on Mill Creek, in Clay County, flowed 60 bbls. the first hour at 100 feet below the Pencil Cave. Herndon & Moorman's No. 2 Arms lease, near Peterman Bend, showed 50 bbls. initial production. Near Lock Branch School, in Jackson County the Selina Oil Co.'s No.'s 1 and 2 W. Rad Hawkins lease, reported at 75 and 250 bbls. initial at around 275 feet in depth.

During May, in the Fox Springs Field, 12 miles east of Celina, in Clay County, on Obey River, Pratt & Co.'s test on the Chilton lease, showed an initial production of 25 bbls. On Lock Branch, Jackson County, the Celina Oil Co.'s No. 3 W. Rad Hawkins, reported with an initial of 350 bbls. In the Juetts Creek Field, of Pickett County, Owens, Turner & Lewis' No. 2 Mary Harrison lease, 50 bbls. initial from the Lower Sunnybrook sand.

In June, E. G. Brandenburg & Co.'s test on the Mrs. Coffey lease, on Holly Creek, 10 miles northeast of Celina, was reported at 50 bbls. On Lock Branch, Jackson County, the Celina Oil Co.'s No.'s 4 and 5 Hawkins lease, showed 100 and 300 bbls. initial production.

During July, the Celina Oil Co.'s No.'s 6 and 7 Hawkins lease, on Long Branch, Jackson County, started at 50 and 100 bbls. respectively.

In August, John H. McClurkin, in a wildcat on the Dr. Tucker lease, on Long Fork Creek, 6 miles west of Red Boiling Springs, in Macon County, passed through 27 gas pays at a shallow depth of 400 feet, blowing the tools out of the hole many times and doing more or less damage, but no oil was found and the pressure got so heavy that work on the venture was abandoned.

In September, the Ava Oil & Gas Co.'s No. 4 on the Mrs. Mary Williams lease, Clay County, showed 260 bbls. initial output, and the Ohio Oil Co.'s No. 2 William Pennington lease, at 75 bbls. initial.

In October, E. G. Brandenburg's test on the Holmes lease, Clay County, had an initial of 144 bbls. Carnahan Oil Co.'s wildcat on the Turner Clark lease on Ashburn Creek, Clay County, filled a 100-bbl. tank in 2 hours and showed better than 350 bbls. the first day, at 76 feet below the Pencil Cave formation and only 2 feet in the sand. Brown Brothers & Webb drilled in a 5,000,000-foot gas well on the Acey Key lease, south of Long Branch in Clay County, at a depth of 585 feet or 190 feet below the cave formation. Pittsburgh interests drilled a 150-bbl. initial producer in the northeast part of Clay County, in the Wolf River area.

KENTUCKY

Summary of Wells Completed in 1927

Month—	Comp.	Prod.	Dry	Gas
January	95	1,442	20	1
February	88	1,880	14	1
March	79	1,996	13	1
April	86	1,699	20	1
May	101	2,768	22	7
June	76	2,668	19	1
July	108	3,108	32	5
August	140	4,443	49	1
September	108	3,459	32	4
October	106	2,595	37	2
November	98	2,509	36	2
December	72	2,047	30	5
Total 1927	1,157	30,614	330	40
Total 1926	1,277	14,818	250	43
Difference	120	15,796	50	3

Completions by Counties

County—	Comp.	Prod.	Dry	Gas
Warren	85	487	29	2
Allen	47	1,033	19	0
Barren	262	2,234	78	3
Ohio	338	22,247	91	4
Daviess	49	977	17	0
Hancock	2	0	2	0
Cumberland-Monroe	28	892	11	0
Clinton	11	276	5	0
Grayson	2	0	2	0
Simpson	2	10	0	0
Butler	2	10	1	0
Edmonson	2	10	1	0
McLean	1	100	0	0
Union	1	10	0	0
Metcalf	1	0	0	1
Adair	1	0	1	0
Wayne	40	109	26	0
Estill	119	266	28	0
Lee-Owsley	34	996	3	2
Powell	1	5	0	0
Morgan	6	17	0	0
Wolfe	7	12	2	0
Lawrence Johnson	8	49	1	1
Johnson-Magoffin	65	518	6	0
Floyd-Knott	24	10	1	23
Elliott	3	20	1	0
Knox	2	0	1	1
Menifee	2	3	0	1
Carter	2	8	0	0
McCreary	5	16	3	0
Bracken	1	5	0	0
Clay	2	0	0	2
Laurel	1	0	1	0
Total	1,157	30,614	330	40

TENNESSEE

Summary of Wells Completed in 1927

Month—	Comp.	Prod.	Dry	Gas
February	2	85	0	0
March	4	435	0	0
April	10	780	1	0
May	4	455	0	0
June	3	450	0	0
July	2	250	0	0
August	15	49	11	1
September	2	335	1	0
October	14	904	1	1
December	10	213	2	0
Total 1927	67	3,953	16	2
Total 1926	35	3,380	8	1
Difference	32	573	8	1

Completions by Counties

County—	Comp.	Prod.	Dry	Gas
Clay	44	2,393	9	1
Pickett	4	85	1	0
Putnam	1	50	0	0
Macon	1	0	0	1
Jackson	13	1,405	3	0
Overton	3	20	2	0
DeKalb	1	0	1	0
Total	67	3,953	16	2

MISSISSIPPI

Completions By Months for 1927

Month—	Comp.	Prod.	Dry	Gas
April	2	0	2	0
May	1	0	1	0
October	1	0	1	0
November	1	0	0	1
Total 1927	5	0	4	1
Total 1926	8	0	7	1
Difference	3	0	3	0

Completions By Counties

County—	Comp.	Prod.	Dry	Gas
Monroe	3	0	2	1
Tishomingo	1	0	1	0
Copiah	1	0	1	0
Total	5	0	4	1

KENTUCKY-SOUTHERN FIELDS

Summary of Results of Field Operations in Four Divisions

Field—	Comp.	Prod.	Dry	Gas Wells	Oil Wells
Kentucky	1,157	30,614	330	40	787
Tennessee	67	3,953	16	2	49
Mississippi	5	0	4	1	0
Florida	2	0	2	0	0
Total 1927	1,231	34,567	352	43	836
Total 1926	1,322	18,198	297	50	975
Difference	91	16,369	55	7	139

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AFTER all is said—results are what count, and it is on this basis that Patent Flattened Strand "HERCULES" (Red-Strand) Rotary Lines continue to make and hold friends. Their exceptional strength and endurance insure safe, dependable and economical service.

We shall be glad to send, upon request, a pamphlet setting forth the reasons for the various points of superiority of these rotary lines.

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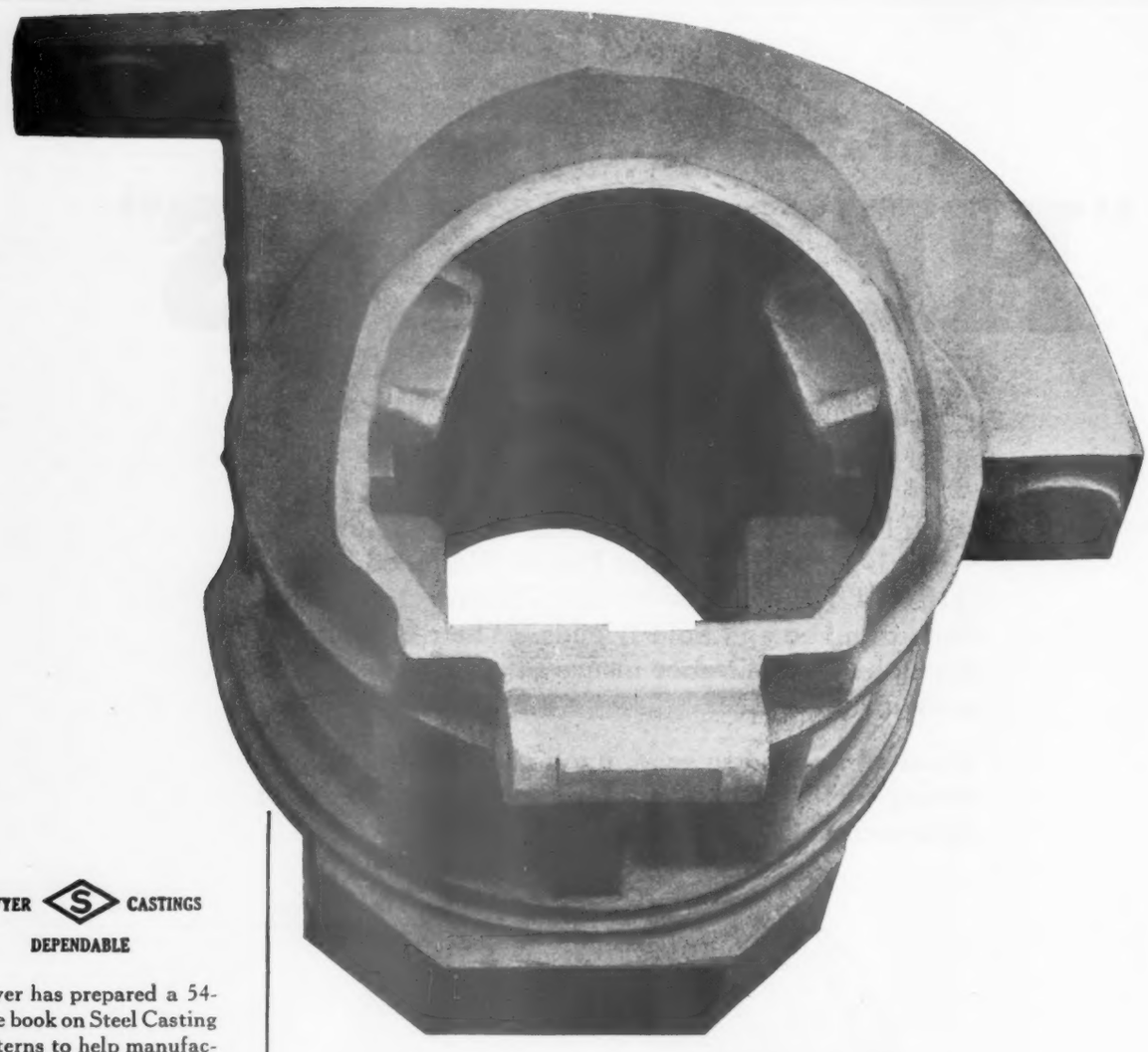

SIVYER S CASTINGS

DEPENDABLE

Sivyer has prepared a 54-page book on Steel Casting Patterns to help manufacturers standardize their pattern equipment to obtain more uniform castings. It is a complete work on its subject in which you will be interested. The Sivyer Alloy book is still current. A copy of either may be had for the asking.

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Sivyer foundry practice has helped many manufacturers overcome the problem of obtaining sound castings of intricate parts with unusually close tolerances.

In this case, a 40 pound journal box is cast so true to pattern that the wedges and other parts fit its inside grooves without machining. This result of Sivyer's precision methods points the way to those who want castings consistently sound and consistently true to pattern.

SIVYER STEEL

SIVYER STEEL CASTING COMPANY, MILWAUKEE

RECORD SLUMP IN GASOLINE TANK WAGON

(Continued from Page 111)

matter to increase it and collect it, there is a possibility other uses may be found for the money in time and the gasoline tax will carry more than its just load.

During the past year more than $240,000,000 found its way into the state treasuries as gasoline tax and in 1928 this amount promises to mount to $300,000,000 on the basis of the increased taxes put into effect during 1927 along with the expected increase in consumption.

The average tax in the 50 representative cities on January 1, 1927, was 2.48 cents. On the same date this year the tax was 3.14 cents. This is an increase of 0.66 cent per gallon on all gasoline sold in the country and while this increase may seem small per gallon, the average tax is already 3.14 cents and represents about 20 per cent of the total cost to the public. A list of tax changes are shown here in tabular form and of the 47 states having gasoline taxes, 25 adopted or increased their taxes during 1927, one state, New Hampshire, increased its tax on January 1, 1928, and only New York and Massachusetts now remain without a gasoline tax. Of those states not showing a change in their gasoline taxes, 4 have had their present tax since 1926, 13 since 1925, 3 since 1924 and 1 since 1923. This also tends to emphasize the rapid advancement in gasoline taxes and the attention it is receiving as a means of quickly and abundantly increasing the state revenue.

TABLE NO. 3—GASOLINE TANK WAGON PRICE CHANGES DURING 1927 AS SHOWN BY DISTRICTS

	Net gasoline tank wagon price Jan.1,'27	Jan.1,'28
Western Coast—		
San Francisco, Calif.	14.0	14.0
Portland, Ore.	14.0	14.5
Seattle, Wash.	14.0	14.5
Average	14.0	14.30
Increase		.30
Midwestern—		
Helena, Mont.	22.0	19.5
Boise, Idaho	22.5	19.5
Casper, Wyo.	18.0	14.0
Reno, Nev.	18.0	18.0
Salt Lake City, Utah	20.5	16.5
Denver, Colo.	18.0	13.0
Phoenix, Ariz.	19.0	19.0
Albuquerque, N. Mex.	20.0	16.0
Average	19.75	16.94
Decrease		2.81
Central—		
Fargo, N. Dak.	20.9	12.0
Huron, S. Dak.	19.5	14.5
Wichita, Kans.	15.8	10.8
Omaha, Neb.	14.25	12.25
Tulsa, Okla.	15.0	10.0
Dallas, Tex.	13.0	11.0
Little Rock, Ark.	15.0	11.0
Kansas City, Mo.	17.9	10.9
Des Moines, Iowa	16.0	11.9
Duluth, Minn.	19.5	12.5
Milwaukee, Wis.	18.1	13.1
Chicago, Ill.	17.0	14.0
Detroit, Mich.	18.8	11.8
Indianapolis, Ind.	18.2	10.2
Cleveland, Ohio	19.0	14.0
Average	17.20	12.0
Decrease		5.20
Atlantic and New England States—		
Augusta, Me.	21.0	17.0
Manchester, N. H.	22.0	15.0
Burlington, Vt.	20.0	17.0
Hartford, Conn.	19.0	18.0
Springfield, Mass.	19.0	18.0
New York, N. Y.	21.0	17.0
Philadelphia, Pa.	18.0	15.0
Providence, R. I.	19.0	17.0
Newark, N. J.	18.0	16.0
Baltimore, Md.	18.0	16.0
Dover, Del.	18.0	16.0
Average	19.36	16.55
Decrease		2.81
Southeastern—		
Norfolk, Va.	18.0	16.0
Charleston, W. Va.	18.0	16.0
Louisville, Ky.	17.0	13.0
Memphis, Tenn.	15.0	12.0
Atlanta, Ga.	14.0	13.0
Charlotte, N. C.	19.0	16.0
Charleston, S. C.	19.0	15.0
Natchez, Miss.	15.5	12.5
Birmingham, Ala.	16.0	14.0
New Orleans, La.	14.5	12.5
Jacksonville, Fla.	12.0	13.0
Average	16.18	13.91
Decrease		2.27

GERMANY USES MORE BENZOL

WASHINGTON, D. C., Feb. 4.—Benzol exportations to Germany tripled during the past year because of the increased use of benzol with gasoline in motor fuels. The United States led all countries supplying benzol to Germany in 1927.

PROLIFIC DEEP SANDS OF CALIFORNIA IMPORTANT

(Continued from Page 142)

of 50 bbls. per day from 2,618 feet a few months later and the present West Front section of the Kern River Field thus came into being although it was not until several months later that other operators gave this district a tumble. The entire Kern River Field produced a total of 721,300 bbls. of crude during the past month, December, of which about 450,000 bbls. came from the West Front. There are 20 drilling projects under way in this area at the present time and these will be augmented by about 25 or more within the next 30 days as drilling requirements call for additional work and several leases now being drained demand immediate offsetting. For this reason Kern River is expected to show a still further increase in production during the year of 1928.

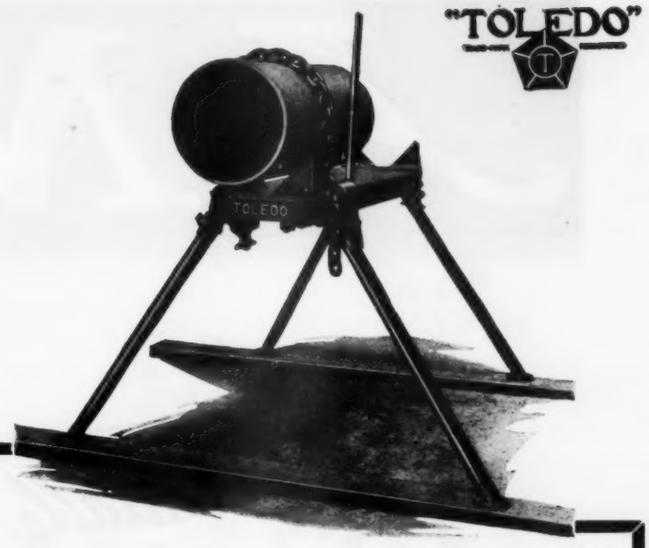
Long Beach Has a Future

Long Beach, the greatest field ever opened up in the continental United States, did not show any great change from the previous year, the 34,541,667 bbls. of crude produced in 1927 being only 3,390,297 bbls. less than the 1926 production which aggregated 37,931,964 bbls. This field remained relatively stable for the greater part of 1927 but showed a very perceptible strengthening during October, November and December due to deep sand exploitations and from present indications it will play a very important part in California's total production during the next several months. The 1928 peak production in this field is expected to occur somewhere around the middle of March, although this may vary one way or the other as it is dependent upon the amount of drilling undertaken and the rapidity with which it is carried to completion. Regardless of how high Long Beach goes as a result of present deep sand development the production of this field during the current year is bound to exert an appreciable influence on the economic structure not only on the Pacific Coast but on the Atlantic Seaboard as well as the present sand being exploited can not be expected to fall off overnight and hence this field may continue to produce in excess of 100,000 bbls. per day for several months. The most remarkable feature in connection with the projected increase in production at Long Beach is the fact that this field is over 6 years old and shows a total recovery to date of 260,215,552 bbls.

Seal Beach

Recent developments at Seal Beach indicate that this field may again play an important part in the production situation due to another intensive deepening campaign which, however, will not be as comprehensive in scope as previous work as only a part of the present producing wells in this section can be deepened to advantage. It is impossible to make a reliable estimate of the amount of new production to be added by this recently discovered deep zone at Seal Beach due to the limited amount of information available at the present time. The entire thickness of sand present has not yet been definitely determined and while 170 feet have actually been opened up in the Alamitos Heights town lot area there may be that much more as the discovery well, No. 1 Bonner of the Richfield, did not drill entirely through the lower horizon but stopped when that much sand had been passed through. The Marland Oil Co. will shed further light on the amount of sand present in the very near future as that concern's No. 11 Selover will test out about 500 feet of sand below the 6,000-foot level some time during the next week. If clean production is secured Seal Beach production may go up another 25,000 bbls. per day as this well will prove up an additional thickness of sand and stimulate drilling activities at Alamitos Heights very appreciably. There is no tanglible basis upon which to predicate future possibilities of the new deep sand at the present time and although several geologists look for a big flush production this is merely conjectural and dependent on the opening up of additional thickness of sand.

"TOLEDO"



Now—

YOU CAN HOLD LARGE PIPE EASILY—

—With a "TOLEDO" No. 9 Portable Work Bench and Chain Vise.

You will find it just right for holding 4½" to 12" pipe when you wish to cut or thread it or make up flanges and fittings. It is very strong and rigid and is made to be fastened to the floor or to skids as illustrated.

The Chain Vise is of a special design, being built as a part of the bench, and only a part turn of the lever tightens the chain and firmly holds the pipe. Very quick and positive in operation. The table top is regularly furnished 4 ft. long and 1 ft. wide, but can be supplied in any length at extra cost on special order. It is equipped with a set of hardened steel jaws that may be readily replaced. A suitable pipe rest attached to the rear end of the table, supports the longer lengths of pipe.

You will find this work bench practically indestructible and will give years of satisfactory service. Every gang of pipe workers needs one of these new benches.

"Toledo" No. 9 Work Bench and Chain Vise, Complete. For 4½" 12" Pipe. Net Price $75.00

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—And to Thread Large Pipe

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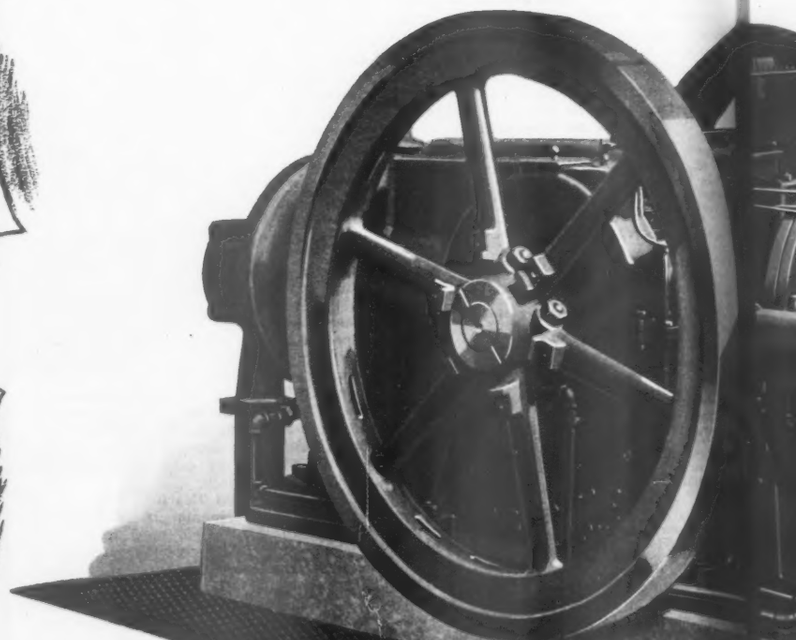

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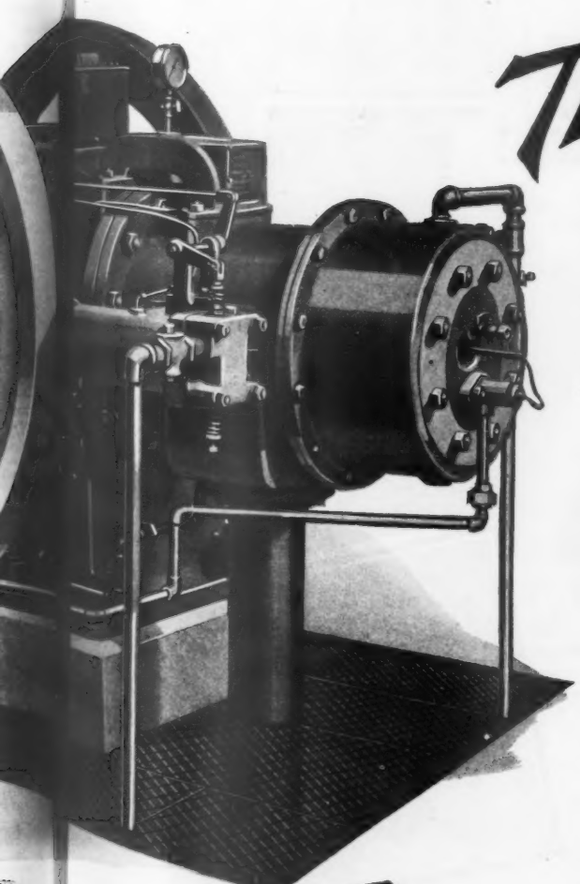
7 Big Advantages

The HOPE "40"



EXPERIENCE of more than 20 years in the manufacture and operation of gas engines and compressors is embodied in the new Hope 40 H.P. Horizontal Two Cycle Gas Compressor.

Its outstanding superiorities may be summarized thus—two cycle simplicity and compactness and light weight, with close to four cycle economy.

Designed primarily for booster service, its advantages are equally valuable in pumping gas for gas oil lifts and for small air lifts.

Write for Bulletin 401, describing in detail this latest advance in compressor design and economy.

Adaptability 7

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ENGINEERING AND SUPPLY
COMPANY
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DESIGNERS MANUFACTURERS

—right now...today...this Company has available an *abundant* and *dependable* supply of Electric Power in the Pecos Valley.

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Fort Worth Club Bldg.
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The present year, 1928, is still young and while it looks as though deep drilling and extension work in older fields may again be the outstanding development as occurred during the past two years the newer fields and present wildcat acreage may be of more importance this year than last. Union Avenue, Fruitvale and other promising wildcat areas of the San Joaquin Valley and Ventura Basin may register substantial production late in the year.

REFINERY PRICES SLUMP DURING THE YEAR 1927

(Continued from Page 104)

in 1927 and 7.45 cents in 1926. The 43-45 engine distillate brought an average of 6.77 cents in 1927 and 9.19 cents in 1926.

Fuel Oils

In regard to fuel oils for 1927 a distinction as to price trends by areas and time of year in which the changes occurred should be made. California fuel oil prices were practically unchanged throughout the year. Fuel prices in that area experienced a substantial drop in 1926 under 1925 and the decline in 1927 under 1926 was relatively small.

East of the west coast as will be seen from the weekly price table of this issue, fuel oil prices started to decline at interior refineries at the beginning of 1927. This decline was steady throughout the year. Gulf Coast and Atlantic Seaboard refiners, however, were able to maintain their prices until late in the year. The market at these points is in the hands of a relatively small number of large refiners which move the bulk of their output on short and long time contracts. This coastal market broke sharply toward the end of the year. The contracts made for 1928 indicate that the open market quotations will continue low over the greater part of the year even if the interior market advances.

The average Oklahoma price for 24-26 grade in 1927 was 97.92 cents per barrel. The average for the same grade in 1926 was $1.3072 per barrel, or a reduction of approximately 30 per cent. The reduction in Kansas, North Texas and Mid-Continent areas was practically the same as that in Oklahoma.

In Pennsylvania the average price on 30-34 fuel oil in 1927 was 4.77 cents per gallon. In California the 15-20 fuel oil at tidewater brought an average of 92.21 cents in 1927 and 98.13 cents in 1926. At New York bunker oil averaged $1.6366 in 1927 and $1.75 in 1926. This product slumped to a low of $1.35 toward the end of the year.

Gas Oils

Gas oils closely followed the fuel oil price trends in all areas. The low prices which prevailed for gasoline were not conducive to a maximum demand for gas oil as charging stock in the operation of cracking units. The government reports reflect the fact that more cracked gasoline was made and this means that more gas oil was used in the operation of cracking units.

The outside demand from gas companies and industrial users did not come in sufficient volume to maintain firm prices and at many points, 1927 was brought to a close with average prices lower than during any period in several years.

Lubricants

From the standpoint of percentage decline all grades and types of lubricants held closer to the 1926 average than other refined products. Crude oil prices are of less importance in determining the cost of refining lubricants than most of the other products. In other words manufacturing costs rather than the cost of raw materials are the major factors in determining the price at which lubricants are sold.

In Pennsylvania the 600 Pennsylvania flash brought an average of 17.52 cents in 1927 and 24.19 cents in 1926. Pennsylvania bright stock averaged 33.26 cents in 1927 and 39.54 cents in 1926. In Oklahoma the better grades of Oklahoma bright stocks brought the same in 1927 as in 1926.

In the neutral oils the 200 vis, 3 color averaged 10.32 cents in 1927 and 10.72 cents in 1926. Similar reductions were made in other grades of Oklahoma neutrals. On the Gulf Coast, the 200, 3 color neutral (pale) averaged 10.02 cents in 1927 and 11.35 cents in 1926. In California the 200 vis., 2½ 3 color neutral brought 10.58 cents in 1927 and 12.98 cents in 1926.

Wax

Wax quotations during 1927 reflected an overproduction of that product. The decline was steady during the early part of the year. During the fall months the prices were steady with indications as the year ended that prices had reached bottom. The 124-126 grade averaged 2.94 cents per pound in Oklahoma during 1927. The average for the same grade in 1926 was 4.71 cents and in 1925, 5.16 cents.

In the New York domestic market the 120-122 a.m.p. wax brought an average of 4.29 cents in 1927 and 5.86 cents in 1926. These relative prices at New York also are indicative of the changes in the Pennsylvania market.

WEST TEXAS HAS BIG DEVELOPMENT IN 1927

(Continued from Page 112)

Oklahoma, connecting with Roxana's main system to St. Louis and Chicago. These lines were laid by the Humble, Magnolia, Gulf and Illinois Pipe Line companies (the latter is included as a trunk line because it connects with the Humble line near San Antonio and, in effect, forms a separate trunk line from the Yates Pool to Ingleside).

Pools Openers in 1927

In 1927, the Llano Oil Co.'s well in northern Winkler County, believed to be a new pool-opener, was brought in; Gulf Production Co. discovered a 30-bbl. well on their Waddell block in Crane County, about 12 miles northwest of the Church-Fields Pool; deep, prolific, lime production was found in the Chalk area of southern Howard County by the Magnolia Petroleum Co.; Pennsylvanian oil, the first in West Texas, was discovered in Reagan County by the Texon Oil & Land Co.; the Gulf-McElroy and Church-Fields Pools were linked together in Crane County, and a 100-bbl. producer was completed in Runnels County, the first oil found in that county.

Fisher County, just west of Jones, was added to the producing list by The Texas Company shortly after the first of this year but was a little too late for the 1927 records.

Wonderful Well

The greatest well in West Texas—at least, the well which will always receive credit for being the greatest up to 1928—was the Yates Pool gusher previously mentioned, Mid-Kansas and Transcontinental's No. 2-C Yates. When gauged by the Yates Pool proration committee November 17, a few days after it was brought in, it tanked 2,059 bbls. in 45 minutes, flowing through three 4-inch lines. This figures up at the rate of 65,880 bbls. daily. Nobody knows whether the well could actually make that much oil or not because it was never allowed to flow open for a sufficient length of time. However, it produced 25,538 bbls. during the remainder of November and gauged 2,388 bbls. on December 1.

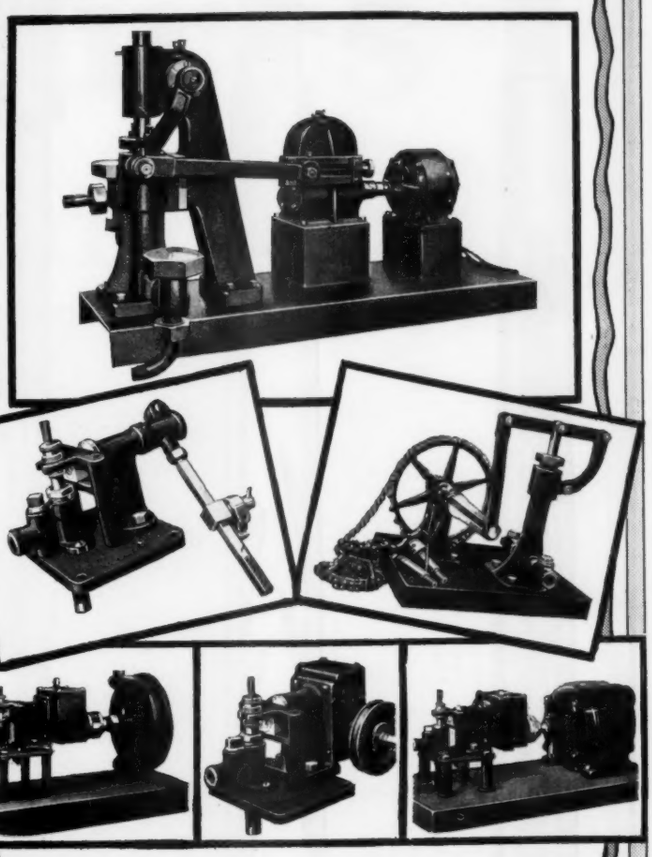
Big Well in Winkler

The greatest well in Winkler County was Roxana Petroleum Corp.'s No. 1 Hendricks-C, NE cor. NW, Section 29, Block B-5, which flowed 980 bbls. the first hour after it touched the big pay at 2,885 feet. This one came in about November 18, and has been pinched in ever since. Shortly after the first of the year it started showing water, but the percentage at latest report was 8 per cent.

Crane County's Best

The greatest well ever completed in Crane County was Landreth Production Corp.'s No. 11 State-Cowden-Anderson, located on the 400-foot strip between the McElroy production and the University land. It came in August 9 and on August 12 gauged 8,996 bbls. During

Proportioning pumps



Types for a Battery or for single units

With the addition of the new "G Type" Pump to our line of proportioners, every treating need is ably met. The line comprises S—L—and G Types for handling small or large quantities of liquid or for handling lime-oil or other liquids with solids in suspension.

Each type assures a positive feed—uninterrupted operation—freedom from over or under feeding—freedom from attention—etc. which result in greater operating efficiency—a more uniform product—greater recovery—accurate control—and general all-round simplicity.

The new "G" Type is particularly interesting since its plunger is guided, eliminating all possibility of distortion when working under high pressure. Rack and pinion are removable for easy replacements. Check valves are of special design to suit lime-oil or similar service. Nipples are long, insuring a good flow of emulsion before it reaches valve where a deflector causes solution to whirl, decreasing settling.

Hills-McCanna Proportioning Pumps may be arranged to suit almost any local conditions in point of drive, power, take off and capacity up to 300 Gal. per hour. Our Engineering Department is at your service.

Pump Bulletin O-2 on request.

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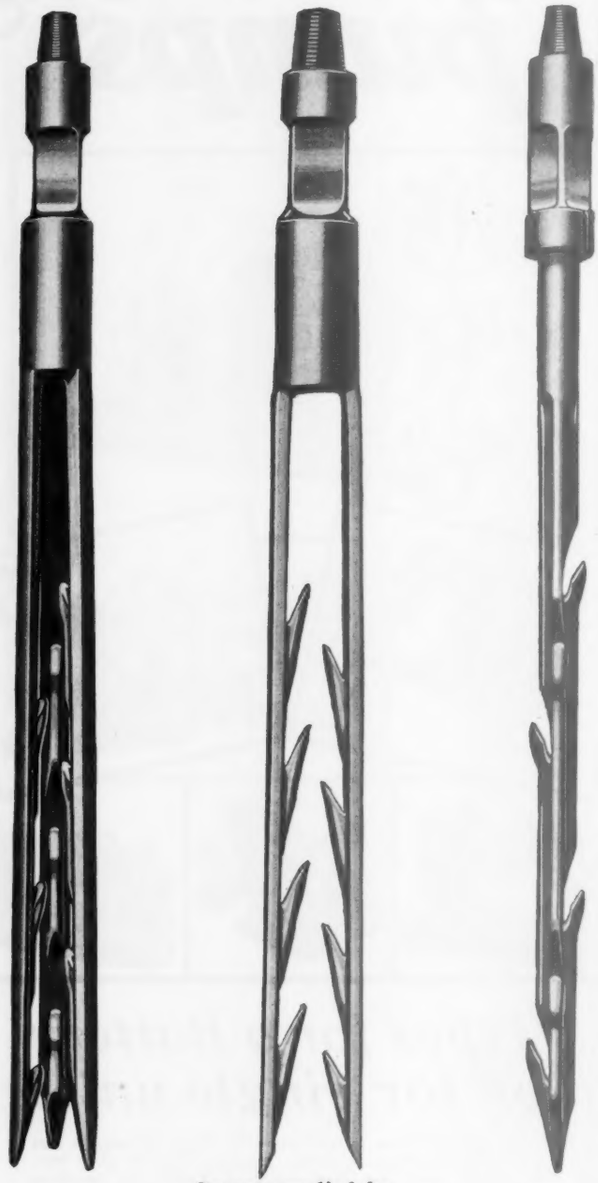
THE MOST COMPLETE SERIES OF ALLOYS FOR INDUSTRIAL USE
FORCE-FEED LUBRICATORS • PROPORTIONING PUMPS • SPEED REDUCERS

The "TALON" Line



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The Monroe "Talon" Line of Rope Fishing Tools are the most efficient Tools ever produced for the recovery of broken cables.

Grabs have collapsible legs which are real "Talons" for gripping the broken end.

Legs are forged from special nickel alloy steel, with wire line or manila rope wickers interchangeable in same working head.

All sizes from 2″ up.

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"Use the better tool first"

its first 100 days it averaged 7,160 bbls. daily, or 298 bbls. per hour, and on December 1 was still flowing 6,829 bbls. This well is the best in the entire West Texas district from the standpoint of actual production.

The Llano Oil Co.'s No. 1 Scarborough, mentioned above, as a new pool opener, is located in the center of Section 1, Block C-22, Winkler County, about 1½ miles south of the New Mexico line. A pay was topped at 2,990 feet last May 14 and eight days later another pay was found at 3,124-28 feet. The top of the lime, according to generally accepted correlations, is 3,132 feet, or 4 feet below the second pay. The hole was carried down to 3,365 feet where the bit was lost and the well was good for about 40 bbls. when completed. Roxana Petroleum Corp. purchased a half interest in this well and 3,600 acres, paying $55,000 and also giving Llano a half interest in 1,400 acres which Roxana had previously acquired for $37,000.

Two new tests have been started up in that vicinity to test the possibilities of the region. Roxana & Llano are drilling their No. 2 Scarborough in the same section, and Gibson & Johnson are drilling one about 3 miles west of the discovery, in Section 3, Block 74. Some geologists believe the Llano pumper situated on the east flank of the same general fold that causes accumulation in the Hendricks Pool.

The Waddell Ranch discovery was made by Gulf Production Co. the latter part of July. Their No. 2 Waddell, situated in the NE cor., Section 10, Block B-25, topped the gray lime at 3,095 feet, with surface elevation of 2,741 feet, or minus 354 feet. At 3,105-09 feet it had 50,000 feet of gas and picked up an oil pay at 3,221 feet. It was drilled on down to 3,500 feet and completed for 30 bbls. One other test is drilling half a mile north of No. 2.

Deep Lime Production

Perhaps one of the most significant developments of the year was the opening of prolific deep lime production in Howard County. Magnolia Petroleum Co.'s No. 1 Dora Roberts, SE cor. SW, Section 136, Block 29, was drilled into the pay at 2,956-68 feet, October 24, and flowed 1,368 bbls. the first 12 hours, partially pinched. When opened up about December 1 it gauged 2,234 bbls. the first day and 2,834 bbls. the second period, then kept increasing to more than 3,000 bbls. At latest report it was still holding up about at that rate, and a sizeable drilling campaign is going on around it. Total depth of the well is 2,990 feet.

This is especially important to watch because it is the first big lime production on the east flank of the Permian Salt Basin. Shallow sands in the Chalk Pool of Howard County have yielded excellent small wells with good staying powers, and the deep lime of Mitchell County, just east of Howard County, also has had small decline curves but equally small initial production. It is too early to determine whether this is a major pool the Dora Roberts well has opened, but the prospects appear favorable. An article and map on this area was published in The Oil and Gas Journal, November 3, 1927, page 30.

Drilling to Pennsylvanian

Pennsylvanian oil in Reagan County was discovered by Texon Oil & Land Co.'s No. 1 University-B, a couple of locations south of the Orient Railroad in Section 36, Block 9, about the middle of July. The deep pay was topped at 6,250 feet and "sweet" oil testing 38.7 degrees gravity rose 1,800 feet in the hole. At latest report this well was shut down at 7,140 feet, which established a new depth record for West Texas.

Linking of the Church-Fields and Gulf-McElroy Pools in Crane County was an important development of 1927 because the combined pools reached a peak of about 120,000 bbls. The potential peak at the time this figure was reached, however, was considerably higher than that. Pipe line capacity was limited and many of the best wells and leases had to be pinched in to a great extent.

Water started showing up in the Church-Fields Pool last fall and has encroached upon several leases. It is bottom water but has not yet interfered seriously with production.

Gulf Production Co. has completed 55 wells on its McElroy block, at least half of which are situated along the north line as drainage protection against the original Church-Fields area.

A more detailed account of development in the Church-Fields Pool appears in The Oil and Gas Journal's semiannual number. Little except routine development has occurred since the middle of the year with the exception of the water intrusion, and a few extra large wells.

Church-Fields Undefined

It should be mentioned in passing that the Church-Fields Pool has been defined only on the east and west sides. Wise & Jackson defined it on the east although they proved up scores of additional locations, because they had 300 feet of oil in the hole before their well was shot. On the north, the Independent Oil & Gas Co.'s No. 1 University-B was good for 1,800 bbls. and was doing 1,500 bbls. when pipe line connections were cut off, causing the well to be shut in and considerably damaged. The producing area may extend quite a distance farther north of this well. On the south, Gulf Production Co. has never drilled beyond its No. 6 Crier-McElroy and doesn't know how far the pool extends in that direction.

An article on this field, with full-page map and production record to November 1, appeared in The Oil and Gas Journal for December 8, 1927, on page 32.

Runnels County broke into the petroleum spotlight August 27, 1927, when L. D. Ladd and others' No. 1 R. M. McMillan, in the northwestern part of the Domingo Diaz Survey, topped an oil sand at 2,545 feet. This well was finally completed for 100 bbls. without being drilled further into the pay and 13 other tests were started in the county. Several of them were nearing the pay at the close of the year, but none had yet reached the required depth.

The Proration Agreement

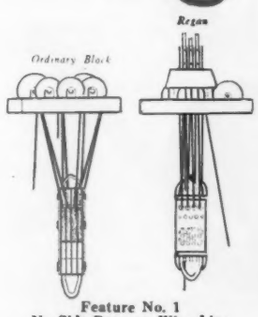
One of the achievements of the West Texas operators during the year 1927 that will go down in history was the agreement on a plan for prorating pipe line runs in the Yates Pool of Pecos County. Early in September the plan was ratified, after preliminary details had been worked out in previous meetings, and B. C. Clardy of the Railroad Commission was employed to supervise the workings of the plan in the field. Proration was made applicable to leases October 1 and was applied to individual wells November 1. Hourly gauges to determine the potential production of each well were taken every 15 days. About the middle of December, the basis of the plan was changed from potential production of the wells to proven acreage owned by each company. This was worked out jointly by the various company geologists in collaboration with J. Elmer Thomas of Fort Worth. Proration on this basis was effective January 1, 1928, and is to continue until June 1.

The Yates Pool

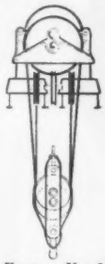
The Yates Pool has been practically defined on the northwest, south and east. Water showed up on the east side in Gulf Production Co.'s No. 1 Thompson, SW cor. Section 71, Block 1, about September 15, less than a week after the well had startled observers by flowing 600 bbls. the first hour at 980 feet. Subsequently, water encroached into all of the Marland Oil Co.'s well's across the river and into all of the producers located in the bed of the river. Mid-Kansas & Transcontinental also had a water well on their "B" lease, No. 18-B, which is situated on the river bank west of Gulf's No. 3 Thompson.

Water appeared on the northwest side of the field shortly after the first of this year in several wells around Kirby & Edson's extension test. Gulf Production Co.'s No. 5 Yates, in the SW cor. of the Runnels County School Land, was the first to get water in that part of the field, although Kirby & Edson's producer had probably sustained a water encroach-

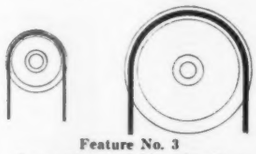
Summarizing 10 features of the Regan Crown Block



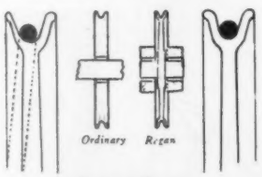
Feature No. 1
No Side-Drag on Wire Line
Lines in the Regan Crown Block run parallel with the sheave grooves.



Feature No. 2
Lines Flare in Proper Direction
Flaring of the lines in proper direction eliminates twisting of block and entanglement of lines—with absence of side-drag



Feature No. 3
Large Sheaves Reduce Bending
The fastest moving lines are carried by large sheaves which slow down and minimize the bending action of wire line and vastly increase the speed of the Block.



Feature No. 4
Wire Line Slippage Reduced
There being no side-drag, the wire-line tracks in the bottom of the grooves, minimizing friction and lengthening the life of sheaves and bearings.

During the past few weeks we have been enumerating point by point the outstanding features of the new Regan Crown Block. Here is a summary of 10 features thus far enumerated. There are a score or more of other important advantages, details of which will be given to you upon request.

Regan
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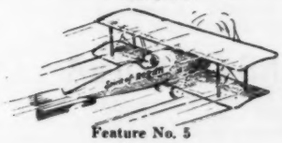
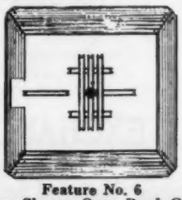
Wm. Brant, Manager

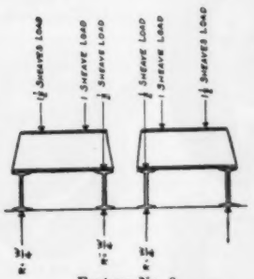


Feature No. 5
Speed
Regardless of the number of sheaves used this Block permits vastly increased speed, because of decreased bending action and minimum friction on bearings and absence of side-drag.

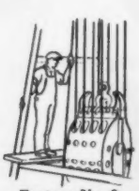


Feature No. 6
Crown Sheave Over Dead Center
All sheaves are set symmetrical, which allows the Block, when strung in any manner, to hang in the middle of the Crown. Crown sheave can be used to plumb the center of hole by dropping cat line.

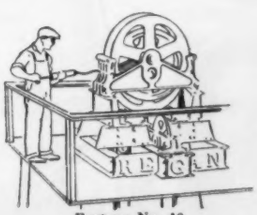
Feature No. 7
Keeps Traveling Block Centered
When adding or removing lines, the Traveling Block remains in its central position in dead center over the hole. Unnecessary to shift Block.



Feature No. 8
Equalized Load on Derrick
The four legs of the derrick carry an equal load because of the equal distribution of the load over the Crown beams.



Feature No. 9
Hazards Eliminated
The dead line and slowest line are placed next to finger board so that the Derrickman cannot grab a fast line. Also other safety factors.



Feature No. 10
Alemite Lubrication
Positive Alemite lubrication reaches all bearings, which are easily accessible while Block is in action. Also provision is made to lubricate the wire line.

Intimate Knowledge of the Oil Industry

THE history of The Exchange Banks of Tulsa is synonymous with the history of the Mid-Continent oil fields.

On the directorate are men who have lived in the oil business since that industry was in its infancy—Many of them worked around the drilling wells of Pennsylvania, Ohio, West Virginia, Indiana, Illinois and other oil producing states.

Today these men who are nationally known authorities on oil direct the business of "The Oil Bank of America."

The combined capital, surplus and undivided profits of The Exchange National Bank and Exchange Trust Company exceeds $5,000,000. Combined Resources Exceed $55,000,000.

EXCHANGE BANKS OF TULSA

The Exchange National Bank — The Exchange Trust Company

ment prior to drilling in of the Gulf's test, but the owners had it pinched in and did not know the water was there.

The northeast flank of the Yates Pool had not been defined except by Pandem & Gibson's No. 11 River Bed, more than 2½ miles northeast of production. It drilled into sulphur water after the close of the year and was very low structural y.

The Yates Pool started the year with one producing well and closed the books for 1927 with 116 producers making 54,000 bbls. but with potential production of at least 200,000 bbls.

The Hendricks Pool started the year with one well, also. It was producing 85 bbls. at the beginning of 1927. When the year closed, Hendricks Pool wells numbered 54 and they were tanking about 80,000 bbls. daily, with estimated potential of 150,000 bbls.

Production of West Texas

The West Texas fields produced 49,689,657 bbls. of crude in 1927. Of this quantity the Upton-Crane Fields produced 29,583,131 bbls.; Reagan County, 8,668,381 bbls.; Mitchell County, 1,358,280 bbls.; Pecos County, 5,250,173 bbls., and Winkler County, 3,109,523 bbls. The counties of Glasscock, Howard, Scurry, Crockett, Loving, Ector and Garza also contributed, but to a lesser degree. In January, 1927, the whole area produced an average of 68,592 bbls., and in December the fields averaged 245,073 bbls. and were on the ascendancy. This production could at any time after the middle of the year have been vastly increased.

The accompanying production table gives the details by counties for the year and tells a story of steady growth in crude output in the general territory. What the same fields will produce this year depends largely on the price of crude and especially the price paid for West Texas crude which was hard hit by the general slump in prices last year.

WEST TEXAS
Completions by Counties

County—	Comp.	Prod.	Dry	Gas
Andrews	1	0	1	0
Borden	2	0	2	0
Brewster	1	0	1	0
Cochran	1	0	1	0
Coke	1	0	1	0
Concho	7	0	7	0
Crane	187	243,611	13	0
Crockett	24	28,483	13	0
Culberson	2	0	2	0
Dawson	1	0	1	0
Ector	2	65	1	0
Fisher	14	0	14	0
Garza	2	0	2	0
Glasscock	10	230	9	0
Howard	106	7,900	17	2
Irion	2	0	2	0
Jeff Davis	3	0	3	0
Jones	45	5,561	29	0
Kent	1	0	1	0
Kimble	1	0	1	0
Loving	2	125	1	0
Midland	1	0	1	0
Mitchell	37	2,514	8	0
Nolan	3	0	3	0
Pecos	126	576,537	29	0
Presidio	1	0	1	0
Reagan	56	13,267	7	2
Reeves	4	0	4	0
Runnels	4	200	3	0
Schleicher	1	0	1	0
Scurry	1	43	0	0
Sterling	4	2	3	0
Stonewall	1	0	1	0
Taylor	12	0	12	0
Terrell	2	0	2	0
Tom Green	4	2,715	4	0
Upton	189	77,385	30	0
Val Verde	3	0	3	0
Ward	1	0	1	0
Winkler	50	100,370	8	2
Total 1927	915	1,058,948	243	6

Completions by Month

Month—	Comp.	Prod.	Dry	Gas
January	59	21,576	12	0
February	86	35,722	17	0
March	77	15,178	17	2
April	104	49,055	23	0
May	91	29,180	30	0
June	47	18,014	11	0
July	103	70,531	36	1
August	71	59,936	18	0
September	70	68,869	17	1
October	43	58,971	12	0
November	93	231,102	29	2
December	117	401,014	21	0
Total 1927	915	1,058,948	243	6
Total 1926	518	137,571	138	1
Difference	397	921,377	105	5

CALIFORNIA CHAMBER MEETING

LOS ANGELES, Calif., Feb. 4.—The annual banquet of the Chamber of Mines and Oil will be held at the Ambassador March 8. A. C. McLaughlin, vice president of the Associated Oil Co., has been elected by the Chamber of Mines and Oil to represent that organization on the public relations committee of the American Petroleum Institute for the ensuing year.

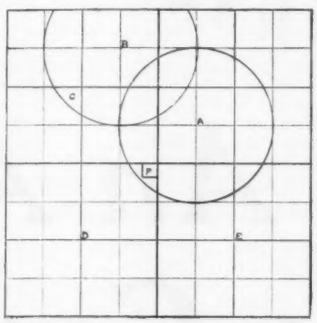
The title of Edwin Higgins, who has served as secretary of the Chamber of Mines and Oil for the last four years, has been changed to managing director and secretary. D. S. Kilgour, who has occupied the position of auditor, has been advanced to assistant secretary and auditor.

OFFERS SUGGESTION FOR OIL REGULATION

The Oil and Gas Journal:

The "law of offsets" is not a product of legislation, and to a very small extent is it a result of lease terms. It is mostly a system built up by "court legislation," or judicial decisions, and this being the case can be supplanted by legislation of our state law-making bodies, provided equity and property rights are preserved. Whenever we can work out a better system than the present and at the same time maintain equity and justice for all, we can abolish the present system and adopt the new by legislative enactment.

We have laws now for the creation and operation of local improvement districts, such as the drainage of land, the creation of parks, and the impounding of waters. Why can we not have a law for the or-



ganizing and conducting of local benefit districts in the producing of oil, whereby benefits and damages can be appraised and assessed, and the management of the district regulated to the mutual advantage of all, and where in case of disagreements there is a defined legal course of action to be followed to a final settlement?

I believe the entire oil industry is interested in a plan to eliminate intensive drilling campaigns during periods of overproduction, but as yet I have seen nothing suggested that seemed practical and fair to all and at the same time free of insurmountable legal obstacles, such as changes in federal and state constitutions.

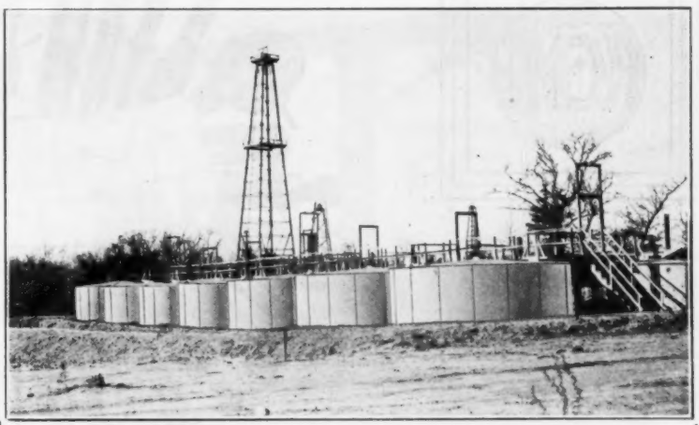
The plan I offer would not require any changes in the basic laws.

The entire rule of offsets is based upon the theory of drainage. To remedy this, the courts, by judicial decisions, have built up the present rule or law of offsets, it being the only remedy available to protect the royalty or fee holder, and the only recourse for the leaseholder to protect his own interest. But instead of requiring the drilling of more wells to protect the property against damage from the offending offset well, why not award the owners of land or leases adjacent a percentage of the oil coming from the first well, part of which undoubtedly is coming from under the ground still undrilled, and rightfully belonging to the leases being drained?

Why is it not possible to have a law providing for the creation of local oil benefit districts, supervised by a board selected upon a basis of acreage involved, or upon vote of all property holders interested, or any other basis that might be deemed fair and practical, and this board have authority, among other things, to award a certain percentage of production in an offset well, on an average basis within an agreed radius of the well, to the adjoining interests, in lieu of their right, and (under the present system) compulsion, to drill?

If a law embracing this idea should be enacted, it should not be left optional with the holder of an offset lease to drill. His participation in the proceeds of the producing well has been awarded him in

KEYSTONE COPPER STEEL



Battery of 14 low-type, 500-Bbl. Maloneys on Geo. Fish Farm No. 1, of Carter Oil Co.

Last Longer Because They RESIST RUST

Rust is what usually ends the careers of ordinary tanks. MALONEYS last remarkably long because they are made of rust-resisting Keystone copper steel. Tests conducted by the Society for Testing Materials have proven copper-bearing steels to be the most durable of all sheet steels.

MALONEY Tanks are perfected in every respect. Our patented "crimp" at seams and joints causes parts to fit with hair-line accuracy. Use of our special rubber packing and our Gaso cement renders seams vapor-tight. Rigid heavy channels reinforce all seams. Cantilever trusses support decks of larger sizes. Our special Smith Process bolts are 35% stronger than ordinary bolts. Paint used is Maloney special pearl gray paint. Large cleaning out plates are set flush with bottoms. Valve and deck equipment is the best obtainable.

"Alone in Quality"

MALONEY TANK MFG. COMPANY
Tulsa, Okla., U. S. A.

Distributors at All Principal Petroleum Points

Sizes: 12 to 10,000 Barrels

Packed in Steel-Bound Crates for Export

Howell Aluminum "3-in-1" Vacuum Pressure Valve and Thief-Hatch—The BEST and LATEST Deck Equipment—POSITIVE Safety.

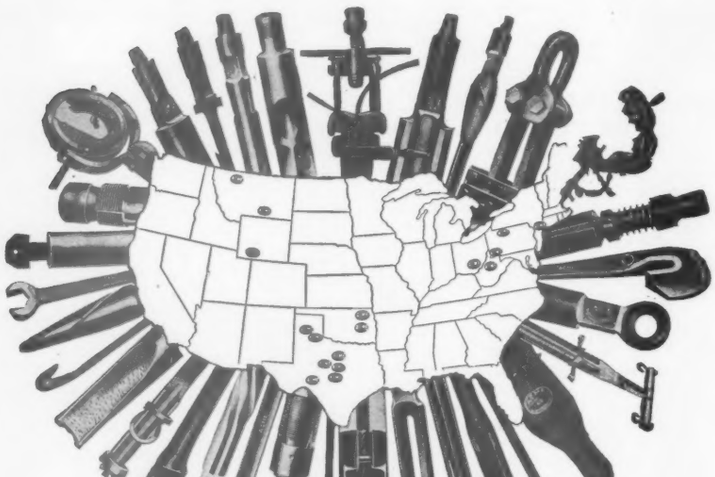
MADE OF KEYSTONE COPPER STEEL

MALONEY PATENTED BOLTED COPPER-STEEL TANKS

MADE OF KEYSTONE COPPER STEEL

MALONEY TANKS

ALONE!



Every Tool An Acme
Every Hole a Good Job

Your chances of having trouble when you are drilling with an Acme Tool have been reduced to a minimum at the factory where the tools are provided with qualities and values that are rare.

And don't forget the unusual operating features which Acme Tools will offer. In this respect we have gone a very long way ahead to provide the best tool in each type whether for drilling or fishing work.

We would like to tell you the details behind Acme Tool quality, service and value. A catalogue will help you toward a better selection in the future. May we send it?

ACME FISHING TOOL CO.
Parkersburg, West Virginia.

Export Office: 136 Liberty St., New York City, N.Y.

Warehouses and Distributors:

Acme Fishing Tool Company—Parkersburg, W. Va.
Acme Fishing Tool Company—Okmulgee, Okla.
B. & A. Specialty Company—Tulsa, Okla.
Acme Fishing Tool Co. of Tex.—Whittenburg, Tex.
Acme Rental Tool Service Company—Graham, Tex.
Logan Foundry & Machine Company—Logan, Ohio

Acme Tool Co.—Breckenridge, Tex.
Acme Tool Co.—Albany, Texas.
Acme Tool Co.—Brownwood, Texas
Acme Tool Co.—Cross Plains, Tex.
Acme Tool Co.—Fry, Texas
Acme Tool Co.—McCamey, Texas
Acme Tool Co.—Pyote, Texas

Midland Iron Works—Billings, Montana
Great Northern Tool & Supply Co.—Kevin, Mont.
Great Northern Tool & Supply Co.—Kemmerer, Wyo.
Great Northern Tool & Supply Co.—Cody, Wyoming
Elms Brothers & Company—Waynesburg, Penna.
Lloyd, Smith Company—Bradford, Penna.

lieu of his right to drill. He has been awarded something definite and valuable for his right to gamble for either a dry hole or a producer.

In fairness to the original or first driller of a well, he should be allowed to recover out of production the full cost of the well before any division of production goes to offsetting acreage, and when the well declined to a point where it would no longer produce at a profit with others sharing the production, then all should go to the owner, and the operators of adjoining acreage should be permitted to drill, and in case of production the owners of the first well should share in the production of the others.

If such a law should be enacted, it might be well for it to apply only to new fields, and then only when a majority of lease and royalty owners desired to create a local benefit oil district. In case of failure to organize a district, let the present rule of offsets prevail. Such a plan would permit intensive drilling when crude might be scarce and the prices good.

One result of the plan suggested would be that operators, instead of drilling property line locations first, and thereby forcing offset drilling as at present, would drill their inside locations first to avoid sharing their production with their neighbors. Another result would be that the owners of small leases, realizing that the other fellow in case of production would participate in the profits, would be more reluctant to drill. There would be fewer new wells started.

In illustration of the plan, the accompanying plat represents 160 acres. A, C, D and E are separate leases, and we will suppose that the feee or royalty is also divided. The lease F is a little fractional acre, a schoolhouse or church lot. The holder of the lease A drills a well in the center of the southwest 10 acres and gets a producer. A meeting of lease and royalty holders is held and a local oil benefit district created and a board elected having legal authority to determine the radius of participation for offsetting acreage. The board decided this shall be a distance of 660 feet around the well, and this distance shall prevail for all subsequent wells drilled in the district.

The amount of acreage within the circle surrounding the well on the lease A is shown on the plat. The owners of the lease C will not be permitted to drill an offset well, and the owners of the well of A lease must prorate their production to the owners of C, D, E and F leases in proportion to the amount of acreage held by each and falling within the circle. The owners of the lease C may be permitted to drill on their location shown as B, as it is not an offset, but in so doing they risk losing a part of the production they are receiving from A, for if they get a dry hole it proves that A is not draining on the well at B. Supposing B is a producer, some of the acreage of both A and C falls within the circles from each well, and one well may be a heavier producer than the other, but a fair board should be able to make a fair adjustment. The board might decide that as the acreage of each falling within the circle is equal in this particular instance, that neither well owes the other.

The drilling of town lots, church lots and other small tracts is prohibited, but the owners have in lieu of their right to drill, a share of the production of the near-by well. The drilling of such tracts under the present system has been an injustice to the offsetting leaseholders. A well drilled with only enough surface on the lease for derrick room drains just as wide an area, as does a lone well on a large lease, and the present rule of offsets requires the drilling of wells just small tract without room to set back in conformity with the custom of the field. This in many instances has reduced our present rule of offsets to an absurdity.

The weak points of this plan are:

It presumes that offsetting territory is productive that has not been proven, but our present rule of offsets does the same thing.

It also forces the wildcatter, in case he strikes, to divide his profits with the holders of offsetting acreage, who have incurred little or no expense, unless the well is located well back within his block. Under the present system the wildcatter proves up the nearby acreage anyway, and drilling starts immediately to drain the acreage he owns and his well weakens as a result, so the proposition is as broad as it is long with the advantage that high and sudden peaks of production should be eliminated.

Another weakness of the plan as shown in this outline is that an acre near the outside of the circle around A, such as the small tract F, shares in the proration on the same basis as an acre nearer the well. This is giving the owners of F the best of the deal from the standpoint of probable drainage, but even so F will be getting only a small fraction of the amount of oil he probably would get if he drilled a well, for F would drain heavily from all the surrounding leases, a thing that is not fair but which exists under present conditions. Under the present system, however, F would have to go to the expense of drilling a well, but when he did, if he got a producer, instead of losing the cost of the well, he would drain his neighbors, so it looks like the proposed plan would be just as fair for one as for the other.

The foregoing is just a rough outline with many details untouched, but it may be the idea of a working basis, and so far we have not even a working basis for a general curbing of overproduction that does not have some serious weaknesses.

HAMPTON A. STEELE.

MURRYSVILLE VETERAN SEES BURNING GASSER

SAN ANTONIO, Tex., Feb. 3.—M. R. Haymaker of Pittsburgh, Pa., in San Antonio on business with A. C. Smith put out the first gas well fire in the history of the oil and gas business in Murrysville, Pa., in 1883 and laid the first gas pipe line ever laid for commercial purposes. Tuesday he went to White Point in San Patricio County to see the Saxet Oil Co.'s No. 7 Rachal which has been burning since Friday.

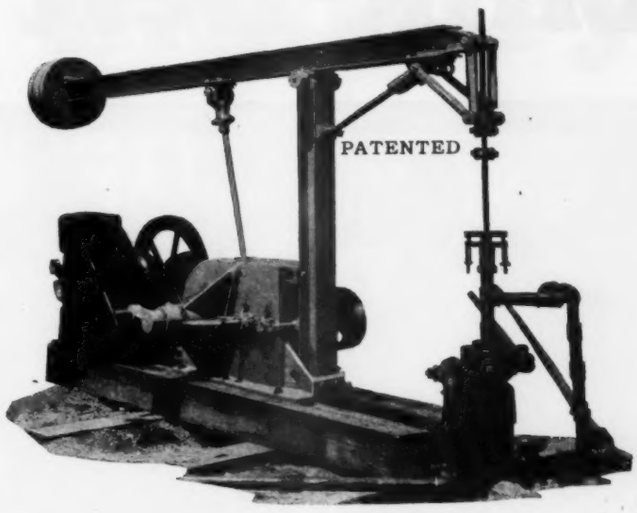
With an experience in the oil and gas business extending from 1865 to the present time, Mr. Haymaker said the fire at White Point was the worst he had ever seen and he thought Tex Thornton would have a hard time getting out the fire.

Mr. Haymaker's first work in the oil business was in Pitthole in 1865 when he worked on the derrick floor. The Murrysville gas well that caught fire was drilled in the winter of 1877-78 and the fire was put out in 1883 by erecting a smokestack over the well. The second attempt at elevating the smokestack over the well was a success. The line was then laid to Pittsburgh and the gas used commercially though then it was hard to convince anyone that it would be a success.

Mr. Haymaker was also a pioneer in Texas and drilled some producing wells in Jack County in 1907 but could not sell the oil and abandoned the lease. Representing Pittsburgh interests who have acquired leases in Blanco County Mr. Haymaker has been driving over that county and thinks well of it.

TEXAS GASOLINE TAXES

Texas State gasoline taxes for December showed a slight decrease compared to the month previous based on remittances made by the five major oil companies operating retail facilities there. The total receipts amounted to $1,634,000 in November. However, total collections over the last four months of 1927 were $6,383,813 compared to $1,861,548 for the same period in 1926. The great difference is due to having but a 1-cent per gallon tax in 1926 and the present 3-cent tax was in operation over the last four months of 1927. The taxed gallonage in 1926 amounted to 186,154,892 gallons and was increased to 212,793,778 gallons last year.



A Mechanically Correct Oil Well Pumping Power

Fabricated with "H" Beam for Sampson Post and Walking Beam.

Toggle made from steel casting.

Interchangeable bronze bearings throughout.

Cut gears running in oil.

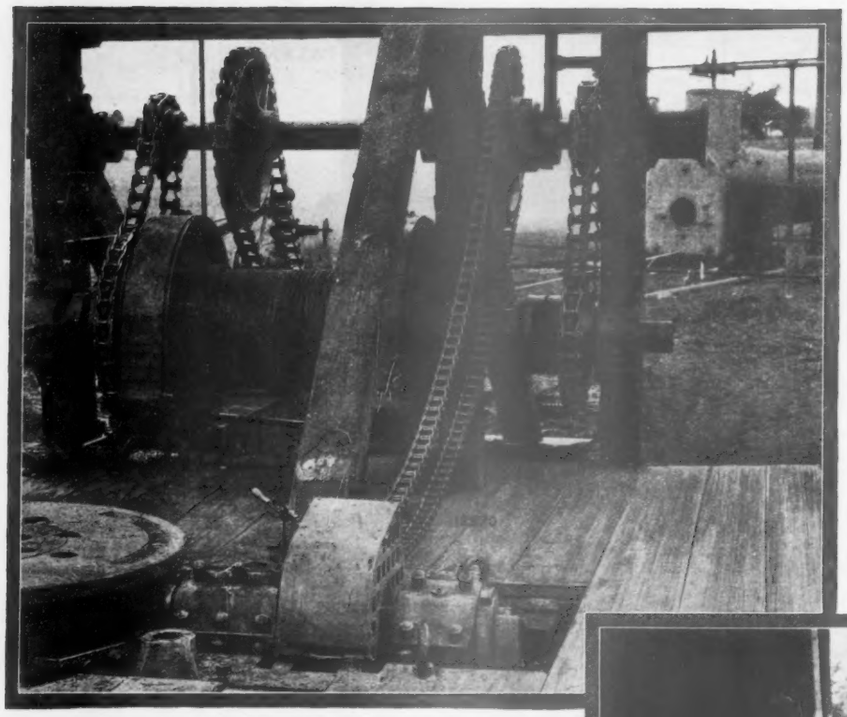
Patented cam motion keeps polish rod in alignment at all times.

Can be used to pump from one to three wells.

Local Distributors Wanted

Stork Engineering Company
Saginaw, Michigan, U. S. A.

Link-Belt Equipment



Link-Belt "SS" Class Rotary Sprocket Chain Operating a Drilling Rig

Link-Belt "SS" Class Rotary Drilling Chain

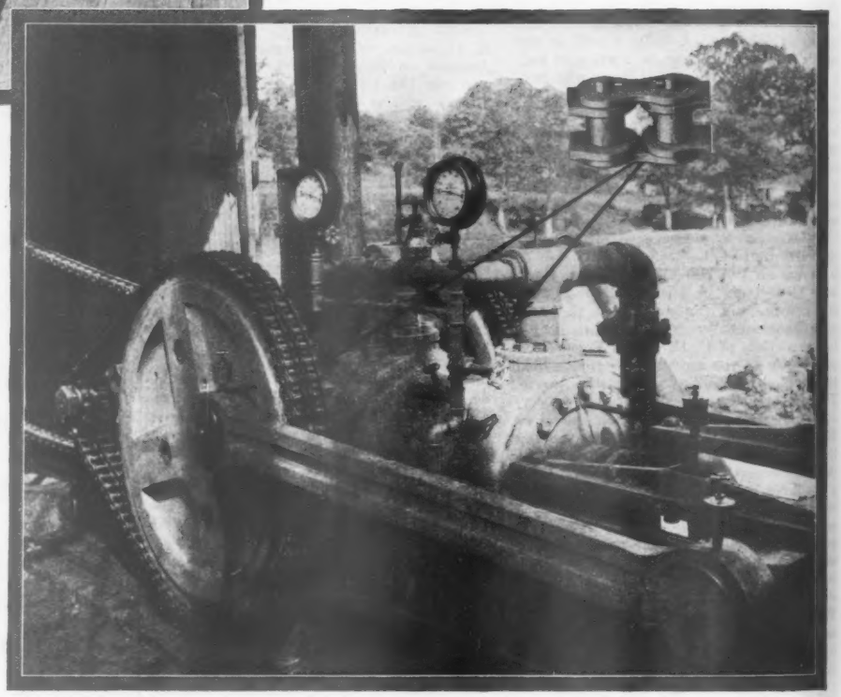
THE first and most widely known chains in the industry are without doubt, the "SS" Class (SS-40 and SS-124) Rotary Drilling Chains, and their corresponding "Plus" chains (SS-40 and SS-124). These chains have brought a high degree of efficiency to the rotary drilling rig.

This double arrow >——< trade mark identifies Genuine Link-Belt chains. Look for it on every link.

Link-Belt "RC" Class Roller Chain

FOR years Link-Belt "RC" Class Roller Chain has demonstrated its durability in all kinds of severe service. It is standard equipment on some of the largest auto trucks, and this service has proved that the chain can stand shocks and strains without impairing its efficiency.

Send for a copy of Link-Belt Roller Chain Data Book No. 257.



Link-Belt Double Width "RC" Class Roller Chain Drives operating Pacific Oil Tool Pumping Unit

LINK-BELT COMPANY
Leading Manufacturers of Elevating

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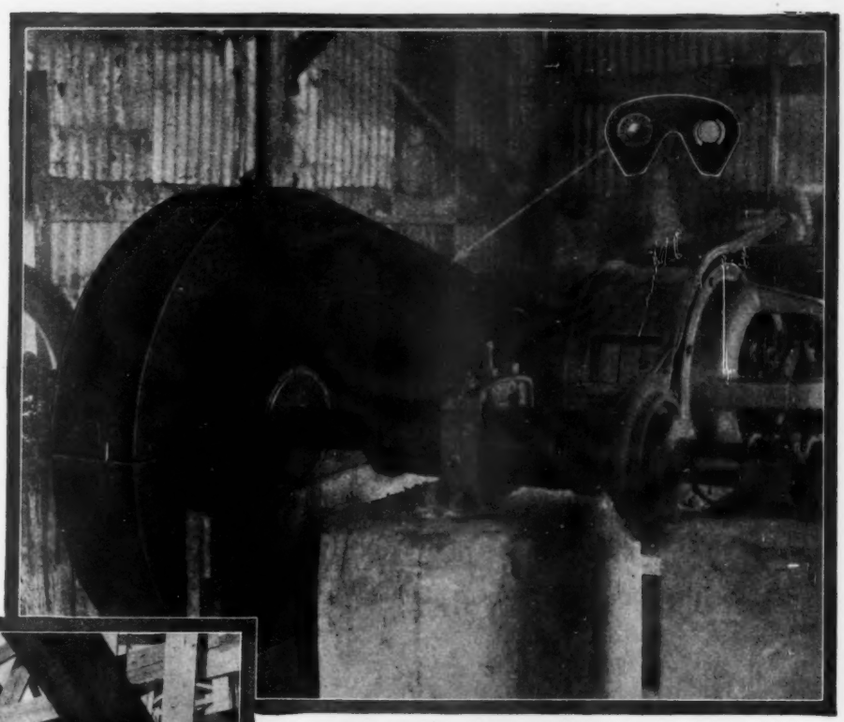
for the Oil Industry

Link-Belt Silent Chain

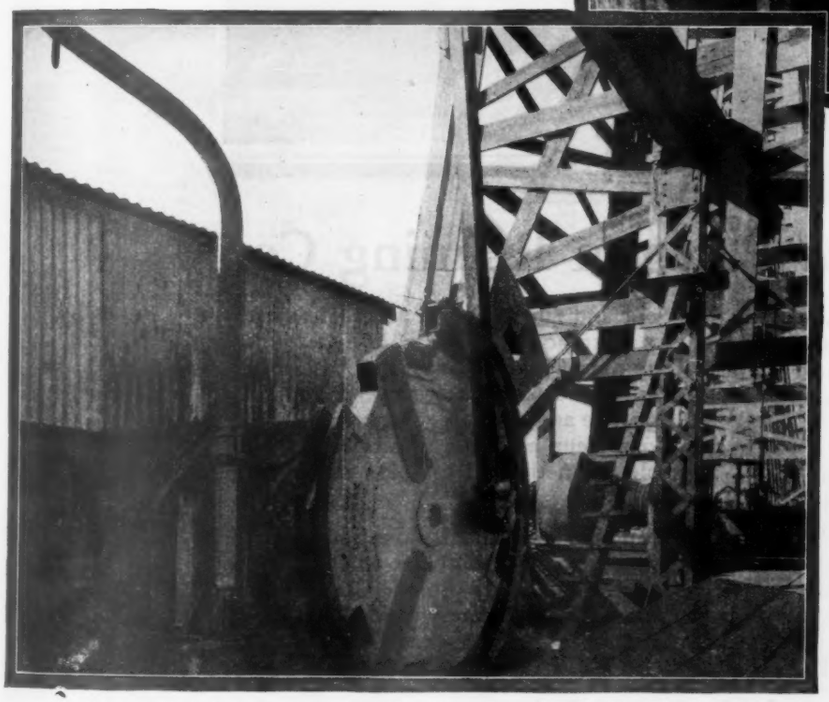
FOR the higher speed drive, as from motor to the first shaft on pumping units, the Link-Belt Silent Chain Drive is winning increased recognition.

Link-Belt Silent Chain is Flexible as a Belt—Positive as a Gear—More Efficient than Either.

It is made in sizes from ¼ to 1000 H.P. and over. Send for a copy of the Link-Belt Silent Chain Drive Data Book No. 125.



Link-Belt Silent Chain Drive (encased), used in the Pumping Station of the Cosden Pipe Line Company, Davenport, Oklahoma



Ruf-Nek Pumping Unit in operation on Lease Cain No. 2, Navaro Oil Co., Pierce Junction, Texas. Well Depth 4880 Ft.

Ruf-Nek Pumping Unit for Oil Wells

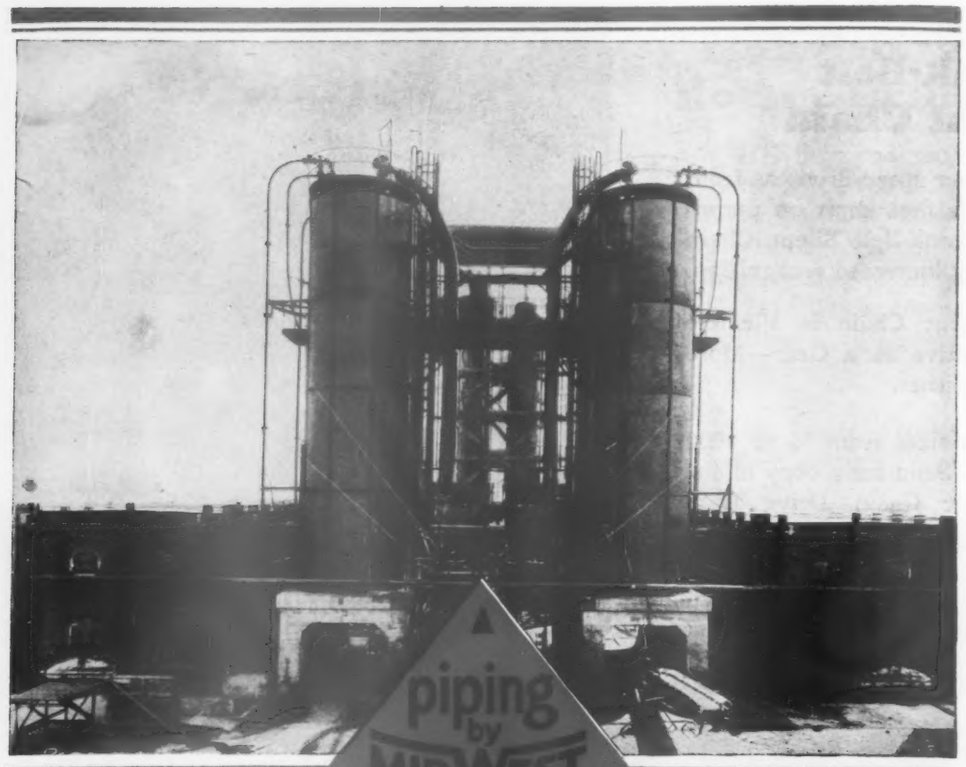
OUR experience in the designing and building of machinery—over a period of fifty years—has entered into the construction of the Ruf-Nek. Its design incorporates many new and unusual features, and Link-Belt Sykes Herringbone Gears are used throughout.

Send for our illustrated 16 page Book No. 780, in which these and other salient features of the Ruf-Nek are set forth fully.

INDIANAPOLIS, IND.
Conveying, and Power Transmission Chains

3319

BELT



Dubbs Stills *at* Paragon Refining Co.

At the Paragon Refining Co., Toledo, Ohio, is another of the many installations of Dubbs Stills in this country and abroad that are equipped with Midwest Piping and Midwest Joints.

At both the St. Louis and Los Angeles plants, Midwest has the facilities and organization to quickly and efficiently fabricate any piping you may require. You are assured prompt attention, intelligent interpretation of drawings and specifications and fabrication in accordance with the most modern practice. Midwest is not hampered by the traditions of piping design and fabrication—the policy is to improve and simplify wherever possible. Competent engineering service is available when desired to solve any piping problem.

You also will find it advantageous to specify piping by Midwest whenever you require fabricated piping. Get in touch with the office nearest you.

MIDWEST PIPING & SUPPLY COMPANY

Plants at Los Angeles and St. Louis

Offices: Los Angeles, 520 Anderson Street. Tulsa, 805 Mayo Bldg. St. Louis, 1450 S. Second Street. Chicago, 208 S. LaSalle Street

MIDWEST Piping Service

PETROLEUM, PETROLEUM PRODUCTS, AND NATURAL-GAS GASOLINE, DECEMBER, 1927

(Continued from Page 141)

IMPORTS AND EXPORTS OF CRUDE PETROLEUM (Barrels)
(From Bureau of Foreign and Domestic Commerce)

	November, 1927 Total	November, 1927 Dy. av.	December, 1927 Total	December, 1927 Dy. av.	Jan.-Dec., 1927	Jan.-Dec., 1926*
Imports	5,339,000	178,000	6,209,000	200,300	58,156,000	60,382,000
From Mexico	1,864,000	62,100	1,327,000	42,800	26,019,000	40,398,000
From Venezuela	2,748,000	91,600	3,510,000	113,200	21,332,000	12,285,000
From Colombia	727,000	24,300	1,075,000	34,700	7,962,000	3,621,000
From other countries	.....	.....	297,000	9,600	2,843,000	4,078,000
Exports	1,280,000	42,700	1,717,000	55,400	15,843,000	15,407,000
Domestic crude oil:						
To Canada	998,000	33,300	1,412,000	45,600	13,036,000	12,983,000
To other countries	282,000	9,400	305,000	9,800	2,807,000	2,423,000
Foreign crude oil	.....	.....	.....	.....	.....	1,000

*Final figures.
Note—No shipments to territories during December.

INDICATED DELIVERIES OF CRUDE PETROLEUM, EXCLUSIVE OF CALIFORNIA GRADES, TO DOMESTIC CONSUMERS (Barrels)

	November, 1927 Total	November, 1927 Dy. av.	December, 1927 Total	December, 1927 Dy. av.	Jan.-Dec., 1927	Jan.-Dec., 1926*
Domestic petroleum by fields of origin:						
Appalachian	2,567,000	85,600	2,705,000	87,300	30,922,000	29,343,000
Lima-Indiana	99,000	3,300	104,000	3,400	1,365,000	2,338,000
Michigan	33,000	1,100	33,000	1,100	435,000	94,000
Illinois and S. W. Indiana	536,000	17,900	614,000	19,800	7,351,000	7,241,000
Mid-Continent	42,241,000	1,408,000	42,524,000	1,371,700	470,260,000	447,713,000
Gulf Coast	3,861,000	128,700	4,100,000	132,200	52,184,000	44,484,000
Rocky Mountain	2,711,000	90,400	2,485,000	80,200	31,024,000	38,709,000
Deliveries and exports	52,048,000	1,735,000	52,566,000	1,695,700	593,541,000	569,922,000
Deliveries	51,093,000	1,703,100	51,447,000	1,659,600	582,971,000	559,900,000
Foreign petroleum	5,298,000	176,600	6,459,000	208,400	58,676,000	60,179,000
Deliveries of domestic and foreign petroleum	56,391,000	1,879,700	57,906,000	1,868,000	641,647,000	620,079,000

*Final figures.

COMPARATIVE ANALYSES (Thousands of barrels of 42 U. S. gallons)

	Production* Total	Production* Dy.av.	Imports† Total	Imports† Dy.av.	Exports† Total	Exports† Dy.av.	Stocks end of period	Domestic demand Total	Domestic demand Dy.av.
Crude petroleum:									
November, 1927	69,792	2,326	5,339	178	1,280	43	‡370,076	.....	....
December, 1927	70,539	2,275	6,209	200	1,717	55	‡371,704	.....	....
Jan.-Dec., 1927	831,883	2,279	58,156	159	15,843	43	‡371,704	.....	....
December, 1926	69,484	2,241	4,987	161	1,318	43	‡315,029	.....	....
Jan.-Dec., 1926	779,264	2,135	60,382	165	20,938	57	‡315,029	.....	....
Gasoline:									
November, 1927	28,558	952	417	14	3,724	124	30,401	24,400	813
December, 1927	28,512	920	282	9	3,154	102	32,323	23,718	765
Jan.-Dec., 1927	330,667	906	5,003	14	44,442	122	32,323	297,928	816
December, 1926	27,498	887	452	15	3,413	110	39,023	21,419	691
Jan.-Dec., 1926	299,734	821	5,540	15	43,313	119	39,023	261,813	717
Kerosene:									
November, 1927	4,824	161	27	1	1,821	61	7,841	2,514	84
December, 1927	4,869	157	15	....	1,237	40	7,669	3,819	123
Jan.-Dec., 1927	56,114	154	55	....	19,480	53	7,669	37,595	103
December, 1926	5,399	174	.....	....	1,847	60	8,575	3,037	98
Jan.-Dec., 1926	61,768	169	74	....	22,248	61	8,575	38,140	104
Lubricants:									
November, 1927	2,477	83	.....	....	798	27	7,524	1,739	58
December, 1927	2,801	90	.....	....	802	26	7,860	1,663	54
Jan.-Dec., 1927	31,721	87	7	....	9,816	27	7,860	21,634	59
December, 1926	2,699	87	1	....	917	30	7,576	1,827	59
Jan.-Dec., 1926	32,293	88	33	....	9,435	26	7,576	22,568	62
Wax (thousands of pounds):									
November, 1927	48,146	1,605	3,132	104	32,541	1,085	171,700	17,404	580
December, 1927	54,039	1,743	1,906	61	30,569	986	167,214	29,862	963
Jan.-Dec., 1927	584,347	1,601	20,462	56	339,336	930	167,214	283,590	777
December, 1926	55,975	1,806	1,189	38	28,410	916	185,331	20,477	661
Jan.-Dec., 1926	645,815	1,769	9,983	27	335,584	919	185,331	251,274	688
Gas oil and fuel oil:									
November, 1927	32,594	1,086	704	23	4,013	134	‡126,192	.....	....
December, 1927	33,029	1,065	451	15	3,828	123	‡123,779	.....	....
Jan.-Dec., 1927	392,342	1,075	8,123	22	47,339	130	‡123,779	.....	....
December, 1926	33,376	1,077	764	25	3,830	124	‡112,168	.....	....
Jan.-Dec., 1926	365,195	1,001	14,432	40	38,351	105	‡112,168	.....	....

*Figures in this column for crude petroleum are run to stills. †From Bureau of Foreign and Domestic Commerce, subject to revision. Exports, except for wax, include shipments to Alaska, Hawaii and Porto Rico. ‡Includes California light. §Includes California heavy.

STOCKS HELD BY THE REFINING COMPANIES IN THE UNITED STATES, DECEMBER 31, 1927

	Gasoline (bbls.)	Kerosene (bbls.)	Gas oil and fuel oil (bbls.)	Lubricants (bbls.)
East Coast	4,748,000	1,401,000	11,209,000	2,629,000
Appalachian	1,035,000	316,000	1,068,000	1,095,000
Indiana, Illinois, etc.	3,734,000	1,004,000	1,434,000	840,000
Oklahoma, Kansas, etc.	2,983,000	605,000	5,205,000	512,000
Texas	4,889,000	1,322,000	8,727,000	1,671,000
Louisiana and Arkansas	1,491,000	937,000	3,681,000	114,000
Rocky Mountain	1,643,000	350,000	658,000	127,000
California	11,800,000	1,734,000	.....	872,000
United States total	32,323,000	7,669,000	•31,982,000	7,860,000
United States total, 11/30/27	30,401,000	7,841,000	•33,637,000	7,524,000
Texas Gulf Coast	4,197,000	1,236,000	7,004,000	1,606,000
Louisiana Gulf Coast	1,413,000	911,000	3,120,000	113,000

	Wax (lbs.)	Coke (tons)	Asphalt (tons)	Other finished products (bbls.)	Unfinished oils (bbls.)
East Coast	56,754,000	33,300	89,500	90,000	6,666,000
Appalachian	24,890,000	1,200	500	105,000	1,151,000
Indiana, Illinois, etc.	16,353,000	36,700	23,900	433,000	3,627,000
Oklahoma, Kansas, etc.	2,904,000	58,000	1,600	101,000	2,259,000
Texas	8,745,000	82,800	10,900	10,000	9,327,000
Louisiana and Arkansas	43,875,000	63,600	32,700	143,000	2,016,000
Rocky Mountain	13,642,000	69,500	9,400	23,000	1,522,000
California	51,000	.....	52,300	316,000	†8,746,000
United States total	167,214,000	345,100	220,800	1,221,000	35,314,000
United States total, 11/30/27	171,700,000	349,200	196,200	1,120,000	35,209,000
Texas Gulf Coast	8,659,000	69,400	10,900	4,000	8,167,000
Louisiana Gulf Coast	43,875,000	61,100	32,300	136,000	1,582,000

*East of California. †Includes 1,615,000 bbls. tops in storage.

GASOLINE PRODUCTION BY THE VARIOUS METHODS, DECEMBER, 1927 (Barrels)

	Straight run	%	Cracked	%	Natural-gas gasoline	%	Total
East Coast	2,417,000	57	1,577,000	37	267,000	6	4,261,000
Appalachian	756,000	68	295,000	26	66,000	6	1,117,000
Indiana, Illinois, etc.	2,108,000	51	1,835,000	44	225,000	5	4,168,000
Oklahoma, Kansas, etc.	2,680,000	58	1,554,000	34	356,000	8	4,590,000
Texas	3,046,000	52	2,306,000	39	546,000	9	5,898,000
Louisiana and Arkansas	1,003,000	51	565,000	28	415,000	21	1,983,000
Rocky Mountain	608,000	51	495,000	42	89,000	7	1,192,000
California	3,693,000	70	540,000	10	•1,070,000	20	5,303,000
Total	16,311,000	57	9,167,000	32	3,034,000	11	28,512,000
Total Nov., 1927	16,613,000	58	8,980,000	32	2,965,000	10	28,558,000
Total Jan.-Dec., 1927	197,282,000	60	101,224,000	30	32,161,000	10	330,667,000
Gulf Coasts	2,925,000	47	2,470,000	40	793,000	13	6,188,000

•Includes natural-gas gasoline run through pipe lines.

(Continued on Page 205)

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KENTUCKY-TENNESSEE

(Continued from Page 74)

hole; Jackson, 1 well, 20 bbls.; Trousdale and Pickett, 1 dry hole each.

Eastern Kentucky

In the Monticello Field, Wayne County, District 2, B. S. Huffaker's No. 5, on the Huffaker farm, is good for 5 bbls. from the Beaver sand.

In the Irvine Field, Estill County, District 7, unknown parties drilled a 5-bbl. pumper in a test on the John Beckley farm.

August Girard and others' test on the Day heirs' farm, District 29, in Wolfe County, pumped 5 bbls. initially.

In Johnson-Magoffin Counties, Loleer and others' No. 1 on the Janex Penix farm, District 27, pumped 5 bbls. The Woodruff Des L. Co.'s No. 1 Conley heirs made 3 bbls., while Adams & King's test on the George Collins farm, same district, is dry.

Western Kentucky

Only a few completions are reported from the western Kentucky fields, owing to the extreme cold weather freezing water lines.

In the Ambrose Pool, in Ohio County, the Creek Drilling Co.'s No. 5, on the Bartlett heirs' 81 acres, set a string of 731 feet of casing, got the sand from 740-90 feet and drilled to a total depth of 800 feet, the well showing an initial of 150 bbls. Southeast of the pool and adjoining the Bob Hamilton farm, James C. Ellis drilled in his second well on the Jane Daniels farm, which is said to show for 150 bbls. initially. In the Sunnydale Field, same county, Fred Estes and others' No. 4, on the Mark Renfrew 53½ acres, is reported dry at 470 feet. In the same field, the Wood Oil Co.'s test on the V. R. Ferguson farm, is also dry at 720 feet.

In Daviess County, McMahan & Coombs' No. 1, on the M. V. Lewis, 4 miles southeast of Philpot, and between Habit and Boston, found 22 feet of sand and is reported good for 4 bbls. an hour. This is a test in advance of the Hayden well a long distance to the north. Evans and Young's test on the Boyd Bristow farm, close to a mile north of the Daviess-McLean County line and in Daviess County, and approximately a mile north of the Dimmick well on the Ratliff farm, in McLean County, is reported good for 30 bbls. Leeper Oil Co.'s No. 3, on the W. L. Barrett farm, is rated at 45 bbls.

Rowe, Randall and others' test on the P. D. Maddox farm, in the northern part of McLean County, failed to find any oil at the usual depth sand and may go deeper in hopes of discovering another pay sand, yet unknown in the field.

In Hancock County, unknown parties drilled a dry hole on the Basham farm, north of Pellville.

In the Glasgow Field of Barren County, little is under way in development work. Ogle and others' No. 4, on the Christ Ellis, is reported at 5 bbls. J. D. White and others' No. 7 Nichols is reported at 10 bbls. initially. Sanson Oil Co.'s Nos. 11 and 12 Browning are estimated at 15 bbls. each initial production.

In the Bowling Green Field of Warren County, southwest of Bowling Green, W. H. Owens and others' No. 3 well, 200 feet from the south and east lines of the James Deathridge farm, showed 8 bbls. initially at 367 feet, and the Thompson Oil Co.'s No. 10 well, 200 feet from the north line and 1,650 feet from the west line of the H. M. Bryant farm, pumped 4 bbls. initially at 1,110 feet.

Field Notes

The wildcat well of Samuel J. Patrick & Sons, on the George Rudy farm, west of Owensboro on the Federal Highway, which is starting with a 16-inch hole, is causing some enthusiasm in the Daviess County Field, for the reason that if commercial pay sand is not found at the shallow depths a deeper test will be made. Mr. Patrick is an old-time operator. The well has reached a depth of around 600 feet.

Louis Frese has been transferred to Owensboro as assistant manager of the Continental Supply Co., located on St. Ann Street. He was formerly at the Bowling Green, Ky., store of the company.

James C. Ellis is drilling an offset well to the Hayden well, on the R. L. Wilson farm, in Daviess County.

E. W. Wilson and others are moving a standard 72-foot rig on the W. C. Riggs farm, near Spring Grove, in Union County, 7 miles west of Morgansfield and not far from the Rough Creek fault. This well will start with a 16-inch hole.

Tennessee

Development work is looking up in the Celina and adjoining fields in northern Tennessee. The best of the late completions in Tennessee is the Carnahan Oil Co.'s test on the Kimes Murdock lease, in Clay County, which did 50 bbls. initially at 485 feet, which is in the Second Sunnybrook sand.

Howard, Dooley and Clark's No. 3, on the Rich farm, in the Celina Field, showed 30 bbls. initially at 500 feet, which is below the Pencil Cave formation. Clark, Bovard & Shirk's No. 1, on the Tidwell heirs is good for 25 bbls.

In Clay County, E. G. Brandenberger and others' second well on the C. A. Greenwood lease did 40 bbls. from the Second Sunnybrook sand at 450 feet. McDonnell & Kraft's test on the B. C. Thompson farm produced an initial of 15 bbls. at 500 feet. Bovard & Shirk's No. 1 Davis is good for 5 bbls. at 600 feet. In the same county, unknown parties drilled an excellent gas well at a test on the John Overstreet farm, at 515 feet. Ava Oil & Gas Co. struck a nice gas pay in a second well on the Bob Riley farm at 550 feet.

Dry holes are also found in Clay County. The Hughes-Rife Syndicate found one on the Waddle land at 1,050 feet. Clark and Aber did no better when they drilled in No. 1 on the Robert Clark lease, which went to a depth of 640 feet without finding signs of oil or gas. J. H. McClurkin's test on the Thomas Long goes into the duster list, as does Thomas Wimmers' test on the John Pennington farm.

In Overton County, the Ohio Oil Co. has a duster at a test near Timothy Postoffice.

On Juetts Creek, in Pickett County, Bryson & Stinson found a dry hole at a test on the Luther Martin farm.

In Tousdale County, near Hartsville, the Ohio Oil Co. has a dry hole at a test on the Goad farm.

The Celina Oil Co.'s No. 10 on the W. Rad Hawkins land, on Lock Branch, in Jackson County, is reported good for 20 bbls. at 350 feet.

BIG DECREASE IN COMPLETIONS IN 1927

(Continued from Page 102)

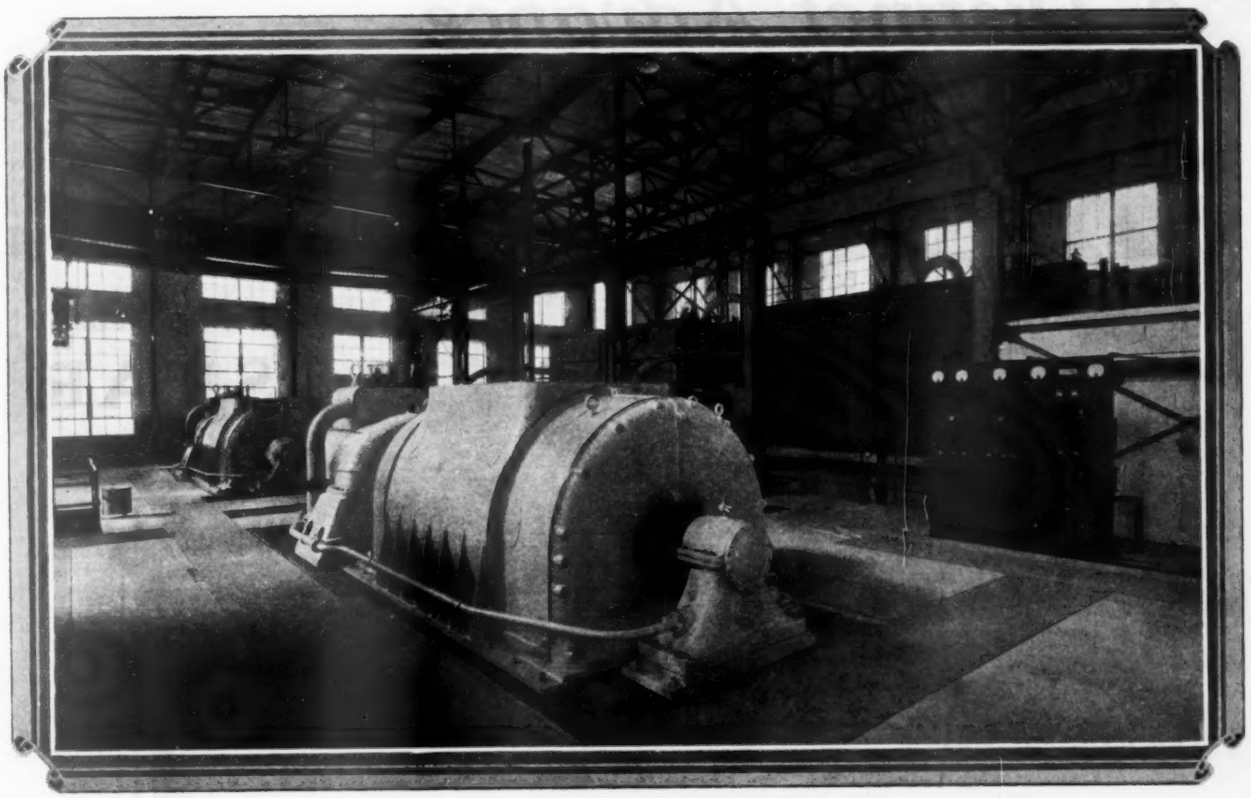
the West Texas area and this together with the low crude market resulted in a great falling off in field work. Last year's crop of completions totaled 3,711, while in 1926 5,738 wells were finished. The average initial production of the oil wells showed an improvement having registered 145.3 bbls. per well as against 102.8 bbls. the previous year. Forty-four per cent of the wells drilled came in dry, a very large proportion for any field.

Increase in Colorado and Montana

In the Rocky Mountain area, Montana and Colorado saw more completed wells than in 1926. The 243 oil wells completed in Montana had an average initial production per well of 121.2 bbls., while in 1926, the average was 197.7 bbls. In Colorado, 120 wells were completed, a gain of 31 over the previous year. Only 50 per cent of the completions were oil wells and the average of 217.3 bbls. per well in initial production compared badly with the 357.7 bbls. of the previous year. In Wyoming, field work fell off, the completions having been 339 as against 450 the year before. The 243 oil wells averaged 499.3 bbls. per well in first-day output as against 241.3 bbls. in 1926.

Eastern Fields

In the fields east of the Mississippi River, the decline in operations was marked, and the only pools wherein there was anything approaching a normal amount of drilling were Allegany, in New



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Gentlemen:

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This hole was drilled to a depth of 1960 feet, with 40 feet of 12-1/2 inch hole, 174 feet of 10 inch and 8-1/4 inch hole carried to a depth of 1773 feet, finishing with 6-5/8 inch. We made as high as 112 feet of hole in a twelve hour tower and there were several towers that we made approximately 90 feet.

The wire line spudder on this machine was certainly a revelation to us, for we spudded practically the entire depth and even with the wire line constantly running over the pulleys, believe there was less cable wear than on a beam machine. The spudder drilled the lime equally as well as beam machines and its much more efficient in cavey or muddy formations.

Our actual gasoline, oil and grease consumption on this well amounted to $125.37 and due to the fact that the drillers were inexperienced in deep spudding increased our fuel expense on this well.

We consider the No. 45 Star Spudder a distinct advance in drilling machinery and we have no hesitancy in saying that we are well pleased with the performance of this machine. It is well built, controls very conveniently arranged and can be quickly rigged up.

Wishing you the success that this new machine deserves, we are,

Yours very truly,
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Oil and Gas Journal

York State, and Bradford, McKean County, Pennsylvania. These pools which are being developed by means of the water drive and compressed air and gas completed wells that will be producing more in 12 months than they did on the day they were drilled in. In Michigan, a new pool was opened in the Muskegon district with one completed well. It revived interest in that State where wildcat drilling has been carried on sporadically for many years but where only one pool, the Saginaw, had resulted up to 1927.

Steady Increase in Flush Production

In the past 12 years there have been 307,972 wells completed in the United States. The total initial production was 41,403,696 bbls. Of the completions 307,972 were oil wells and they averaged only 196 bbls. per well in initial production. There were 70,660 dry holes and 26,081 gas wells. The initial production per well in 1927 was 340.4 bbls., and in 1916, 86 bbls. There has been a steady upward trend in average initial production. During the two years in which the United States was actively engaged in the European war and when oil was in great demand in conducting military and naval operations the average initial production per well was only 92 bbls. in both years. In 1923, the high point was reached with an average of 371 bbls. per well.

PETROLEUM, PETROLEUM PRODUCTS, AND NATURAL-GAS GASOLINE, DECEMBER, 1927

(Continued from Page 201)

RUNS TO STILLS AND OUTPUT OF REFINERIES IN THE UNITED STATES, DECEMBER, 1927

	Crude oil—Domestic	Crude oil—Foreign	Unfinished oils	Natural-gas gasoline blended	Total input (bbls.)
East Coast	9,164,000	4,355,000	698,000	267,000	14,484,000
Appalachian	2,399,000	.....	123,000	66,000	2,588,000
Indiana, Illinois, etc.	7,077,000	.....	464,000	225,000	7,766,000
Oklahoma, Kansas, etc.	8,484,000	.....	223,000	356,000	9,063,000
Texas	14,312,000	84,000	297,000	546,000	15,339,000
Louisana and Arkansas	5,090,000	494,000	177,000	415,000	6,176,000
Rocky Mountain	2,021,000	.....	598,000	89,000	2,708,000
California	17,059,000	.....	*461,000	854,000	18,374,000
United States total	65,606,000	4,933,000	3,141,000	2,818,000	76,498,000
Daily average, 12/27	2,116,300	159,100	101,300	90,900	2,467,600
Daily average, 11/27	2,167,900	158,500	105,200	92,000	2,523,600
Texas Gulf Coast	11,124,000	84,000	318,000	461,000	11,987,000
Louisiana Gulf Coast	3,509,000	494,000	68,000	232,000	4,403,000

	Gasoline (bbls.)	Kerosene (bbls.)	Gas oil and fuel oil (bbls.)	Lubricants (bbls.)	Wax (lbs.)
East Coast	4,261,000	860,000	7,137,000	950,000	20,382,000
Appalachian	1,117,000	295,000	573,000	365,000	9,131,000
Indiana, Illinois, etc.	4,168,000	508,000	2,063,000	343,000	5,504,000
Oklahoma, Kansas, etc.	4,590,000	776,000	2,761,000	184,000	3,944,000
Texas	5,898,000	1,287,000	6,156,000	649,000	4,937,000
Louisiana and Arkansas	1,983,000	568,000	2,323,000	69,000	5,950,000
Rocky Mountain	1,192,000	153,000	641,000	53,000	4,191,000
California	5,303,000	422,000	11,375,000	188,000	.....
United States total	28,512,000	4,869,000	33,029,000	2,801,000	†54,039,000
Daily average, 12/27	919,700	157,100	1,065,500	90,400	1,743,200
Daily average, 11/27	951,900	160,800	1,086,500	82,600	1,604,900
Texas Gulf Coast	4,628,000	1,060,000	4,607,000	614,000	4,691,000
Louisiana Gulf Coast	1,560,000	505,000	1,239,000	68,000	5,950,000

	Coke (tons)	Asphalt (tons)	Other finished products (bbls.)	Unfinished products (bbls.)	Losses (bbls.)
East Coast	13,300	116,700	57,000	67,000	371,000
Appalachian	3,700	.....	30,000	27,000	129,000
Indiana, Illinois, etc.	28,900	32,800	119,000	84,000	128,000
Oklahoma, Kansas, etc.	22,100	500	59,000	113,000	439,000
Texas	21,700	20,200	4,000	535,000	585,000
Louisiana and Arkansas	11,900	48,600	173,000	635,000	80,000
Rocky Mountain	6,200	900	10,000	526,000	73,000
California	.....	43,900	141,000	*448,000	257,000
United States total	†107,800	†262,600	593,000	2,435,000	2,062,000
Daily average, 12/27	3,480	8,470	19,100	78,500	66,500
Daily average, 11/27	3,410	9,670	20,200	73,700	71,500
Texas Gulf Coast	19,000	20,200	1,000	386,000	478,000
Louisiana Gulf Coast	11,600	46,800	160,000	496,000	42,000

*Includes 33,000 bbls. net tops rerun. †Wax, coke and asphalt equivalent to 280.0 pounds per barrel and 5.10 and 5.54 bbls. per ton, respectively.

NUMBER OF PRODUCING OIL WELLS COMPLETED†

November, 1927	1,044	January-December, 1927	14,680
December, 1927	905	January-December, 1926*	19,013

*Final figures.
†For states east of California, from The Oil and Gas Journal; for California, from the American Petroleum Institute.

Natural-Gas Gasoline

The production of natural-gas gasoline in December, 1927, continued at a high level but the daily average production of 4,760,000 gallons did not quite equal the record figure of the previous month, 4,770,000 gallons. Production in the chief producing district, Oklahoma-Kansas, showed its usual increase but this was more than offset by the declines in Texas and the Rocky Mountain states. Stocks of natural-gas gasoline at the plants amounted to 30,847,000 gallons as compared with 34,440,000 gallons on hand the previous month. This material decline was undoubtedly due to continued heavy demand by refiners for blending purposes.

(Thousands of gallons)

	Natural-gas gasoline—Production*—Nov., 1927	Dec., 1927	Dec., 1926	Stocks end of month—Nov., 1927	Dec., 1927	Blended motor fuel, Dec., 1927—Natural gas gasoline used	Naphtha or other oils used	Stocks end of month
Appalachian	8,300	10,000	10,600	2,918	3,240	85	144	266
Indiana, Illinois, etc.	1,400	1,300	1,700	294	281	82	1	15
Oklahoma, Kansas, etc.	53,700	57,300	44,400	17,774	15,635	1,927	2,981	802
Texas	27,500	27,000	23,700	10,422	8,789	393	485	139
Louisiana and Arkansas	6,700	6,800	7,000	1,314	1,162	257	271	49
Rocky Mountain	3,900	2,800	3,000	469	466	23	9	88
Total east of California	101,500	105,200	90,400	33,191	29,573	2,767	2,891	1,359
California	41,700	42,300	39,800	1,249	1,274	(†)	(†)	9
Total United States	143,200	147,500	130,200	34,440	30,847	....	....	1,368
Daily average	4,770	4,760	4,200	.....	.....	....	....	....

*Approximately 97 per cent net production; 3 per cent gross. †Not available.

The indicated output of motor fuel from the above and other sources may be expressed by the following table.

(Thousands of gallons)	Nov., 1927	Dec., 1927	Dec., 1926
Total gasoline produced at refineries* †	1,199,400	1,197,500	1,154,900
Raw gasoline blended at plants east of California	2,700	2,800	3,000
Raw gasoline sold direct to jobbers (estimated)	800	800	800
Benzol production‡	8,600	8,900	7,400
Total motor fuel produced	1,211,500	1,210,000	1,666,100
Daily average	40,380	39,030	37,620
*Includes natural-gas gasoline blended at refineries	115,900	118,400	96,100
†Includes natural-gas gasoline run through refinery pipe lines in California	8,600	9,100	14,100

‡Estimated with production of by-product coke as a basis.

Columbian Bolted Steel TANKS

27,500 Bbl. Capacity

Never did we think it impossible—but for a long time we wondered if it was practical to develop a bolted steel tank larger than 10,000 barrels.

Oil field men said there was a field for a big tank that would be easily portable. For instance, one that could be quickly set and reset in new flush fields to serve ahead of pipe line facilities.

Here it is. 27,500 barrels capacity. 90 feet 2½ inches inside diameter. 24 feet 3 inches high. Not a theoretical development. But actually built, set and tested. You can rely upon it as on any other size Columbian Improved Bolted Steel Tank.

Columbian was *first!*

is not as boastful as it might sound. Rather, it is somewhat of a conventional phrase when bolted steel tanks are under discussion. And logically so, just as the name "Lindbergh" stands out in aeronautics.

1st to build a bolted steel tank larger than 500 barrels capacity.

1st to build a bolted steel tank of 5,000 barrels capacity.

1st to build a bolted steel tank of 10,000 barrels capacity.

1st to build a bolted steel tank of 27,500 barrels capacity.

Thus the primacy of Columbian in bolted steel tank construction is set up in chronological order—pridefully, yet not boastfully.

The Columbian field organization, maintaining adequate stocks and skilled tank crews convenient to all fields, can now equip your operations with Improved Bolted Steel Tanks in capacities from 65 to 27,500 barrels. Also, all sizes of WELDED steel tanks for oil field use.

COLUMBIAN STEEL TANK COMPANY

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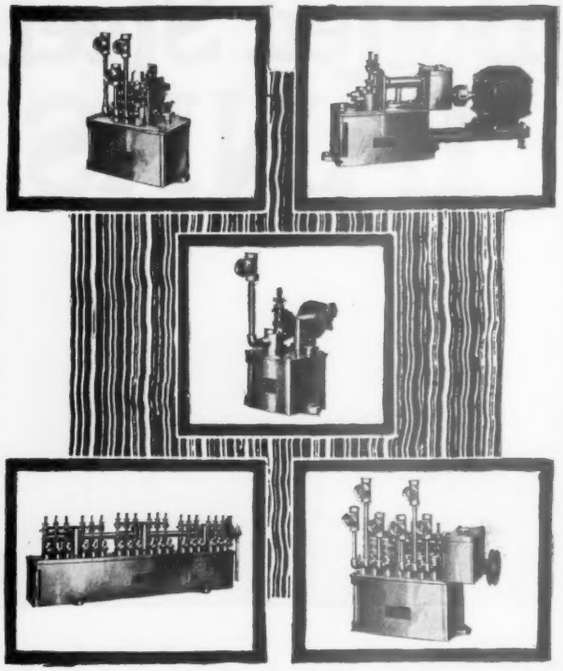

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These and other reasons prove Hills-McCanna's superiority. Consult us on your high pressure lubricating problems. Types from 1 to 60 feeds to serve compressors—engines—pumps and other stationary or movable equipment.

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THE MOST COMPLETE SERIES OF ALLOYS FOR INDUSTRIAL USE
FORCE-FEED LUBRICATORS • PROPORTIONING PUMPS • SPEED REDUCERS

CENTRAL WEST FIELDS

(Continued from Page 72)

bulk is in Fairbanks Township. A list of the completions in these two townships, since the first well was found in the deep sands of Vigo County, in what is now the "Little Oklahoma Pool," is as follows:

In Prairie Creek Township, Vigo County, A. R. Morris' No. 1 William Riggs farm, Section 31, showed 40 pounds gas pressure at 335 feet, and No. 2 developed the same showing but at a depth of 400 feet. The Siosi Oil Corp.'s No. 1 well, 330 feet from the south line and 300 from the west line of the William Riggs farm, in the SW SE Section 32, had an initial of 125 bbls. at 2,174 feet; No. 2 well on the Riggs No. 1 farm, and in the southeast corner, came in with an initial of 90 bbls. at 2,104 feet; No. 3 well, same company, on the same farm, 990 feet from the south line and 330 from the west line, but in Section 32, had an initial of 25 bbls. at 2,133 feet. No. 4 well, 330 feet from the south line and 990 from the west line of the same farm, had an initial of 100 bbls. at 2,162 feet. No. 6 well, same farm, 60 bbls. at 2,195 feet; No. 9 did 30 bbls. at 2,195 feet, and No. 10 showed 30 bbls. at 2,195 feet, with Nos. 5, 7 and 8 drilling. Nos. 2 and 3 on the William Riggs No. 2 farm, also owned by the Siosi corporation, showed 30 bbls. each at 2,195 feet.

The Ohio Oil Co. also drilled two wells in Prairie Creek Township, Vigo County, but both were reported dry holes. They were No. 1 James A. Stout farm, Section 26, which went to a depth of 2,340 feet, and No. 1 on the William Collins farm, Section 29, which went to a depth of 2,374 feet.

In the same pool, but south across the line in Fairbanks Township, Sullivan County, some nice wells have been found in the past. In this township, the Siosi Oil Corp.'s second well on the J. R. Thomas farm, Section 6, and 930 feet from the north line and 330 from the east line of the lease, in the NE of the NE, showed an initial of 60 bbls. at 2,005 feet. No. 4 well, 330 feet from the north line and 250 from the west line of the same farm, was drilled to a total depth of 2,226 feet and plugged back to 2,210 feet and shot, with an initial of 100 bbls. No. 5 well, 990 feet from the south and east lines of the same farm, showed 25 bbls. at 2,200 feet, and No. 6 well, 330 feet from the north line and 990 from the west line of the same farm, produced an initial of 40 bbls. at 2,200 feet. Baldridge and others' No. 1 well, 330 feet from the north line and 250 from the east line of the Charles Scott farm, Section 6, Fairbanks Township, had an initial of 60 bbls. at 2,200 feet. Twin Creek Oil Co.'s test in the northwest corner of the Nora Williams farm, in the NW NW Section 5, produced an initial of 50 bbls. at 2,223 feet. Bays and others' test in the NW cor. of the James T. Mayfield farm, in the SW NW Section 4, pumped 40 bbls. at 2,221 feet.

In Linton Township, Sullivan County, J. B. Miller and others' wildcat, 660 feet from the north and east lines of the Mary J. McDonald farm, in the NW SW Section 36, was a duster at a depth of 2,192 feet.

In Patoka Township, Gibson County, Mauck and others' test in the southwest corner of the Robert Howe farm, in the SW of Section 1, was dry at 1,162 feet. In Washington Township, same county, Joe S. Young and others have pulled out No. 1 on the Edward Phillips farm, in M. D. 123, as it was too small to put on the pump.

In Pike County, Clay Township, the Mahutska Oil Co. is drilling a test on the Robert Hynunam farm, in Survey No. 3, and A. B. Bement is drilling No. 6 on C. Waltz farm, Lot 14. In Washington Township, G. L. Clark is drilling a test on the Preston heirs farm, Section 19.

H. B. Millikan is drilling a test on the Carbin farm, Section 28, Jefferson Township, Sullivan County.

Illinois

Development work is quiet in all areas of the Illinois Field, there being a very few wells under way, as usual at this season of the year. There does not appear to be very much good looking territory in sight at this time and much wildcatting will have to be done to find new fields or work will soon fall down as most of the defined areas are drilled up.

In Dennison Township, Lawrence County, the Ohio Oil Co.'s No. 9 well, 1,330 feet from the south line and 225 from the west line of the P. S. VanWay farm, in the SW of Section 31, was drilled to a total depth of 1,845 feet and plugged back to 1,725 feet and shot, resulting in a 5-bbl. pumper.

In Friendsville Township, Wabash County, Miller and Karns' No. 1 on the C. R. Schrader farm, Section 12, about 1 mile north of Friendsville, is reported to be showing for 30 bbls. initial and not far from an old well drilled on the J. H. Price farm some years ago. This may open a new lead for further development in that section of the county. In Wabash Township, Karns and others abandoned No. 1 on the V. Jordan, Section 2, and the Breen Oil Co. did the same with No. 1 on the L. G. Stillwell, Section 2, and is now drilling No. 3 on the same farm.

The Ohio Oil Co. is starting No. 3 on the Dora A. Hipshire No. 2 farm, Section 24, Southwest Township, Crawford County.

In Casey Township, Clark County, W. C. McBride, Inc., is drilling No. 28 on the James Rush, Section 28, and No. 2 on the R. E. Deverick, Section 1, Johnson Township.

Central Ohio

Too much snow and cold weather have hampered development in the Central Ohio Field during the past several days. Completions are few at this time. In Killbuck Township, Holmes County, the East Ohio Gas Co. has a fair gas well at a second test 275 feet north of the road and 400 east of the north and south road on the F. H. and L. E. Garver 20 acres, Lot 18. The Kemrow Co. has a fair gas well on the C. P. Allison in Richland Township.

There has been an active leasing campaign in Geauga and Portage Counties just ahead of the big Summit County wells. Practically all the big companies have secured large blocks of acreage. There is a location made in Geauga County by the Cambridge Gas Co. that expects to start operations as soon as material can be moved.

There has been a structure worked out just east of Chagrin Falls in Geauga, and the Atha-Webber Co. has recently acquired 22,000 acres and is going to start drilling in that vicinity. There are two sands with excellent prospects, the Clinton and Newberg sands. This territory is on a good lime as good wells have been struck in Summit County and also some nice wells north in Lake County. Good wells have also been found in Ashtabula County, Lorain, Cuyahoga and Lake Counties, all bordering on the shore of Lake Erie. Geauga County is east of Cuyahoga; Portage is to the southeast, as is Summit County, making a large area that has seen but little wildcatting, outside of parts of Cuyahoga County.

FORT WORTH GEOLOGISTS ELECT

FORT WORTH, Tex., Feb. 4.—Ben E. Thompson, geologist attached to the Gulf Production Co.'s West Texas headquarters office here, was elected president of the Fort Worth Geological Society at the annual meeting, succeeding J. Elmer Thomas. Ford Bradish, consulting geologist, was named vice president and C. E. Yeager of the geological department of the Texas-Pacific Coal & Oil Co. secretary and treasurer. Robert Burk, consulting geologist, was the retiring vice president, and W. R. Berger, chief geologist of the Marland Oil Co. of Texas, the retiring secretary-treasurer.

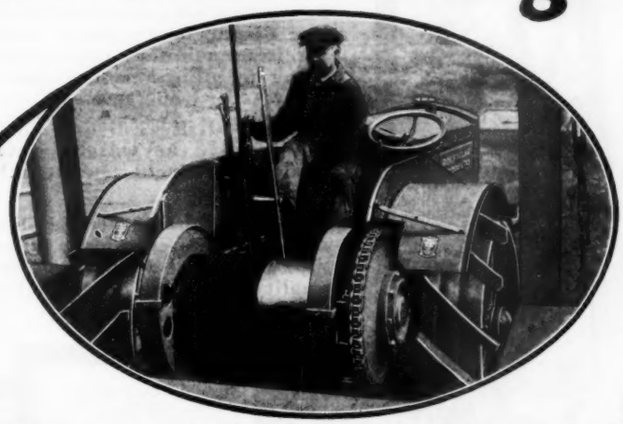
MEXICAN OIL TAX INCOME

Mexican production on oil for December totaled 662,081 pesos, against 766,170 pesos for November. Export taxes declined from 369,156 to 342,741 pesos.

Line Does Not Pile Up

Safe From Line Jumping

No Jar, Jerk or Jolt, Cable Lasts Longer



ROCK ISLAND Model 70 Tractor Winch

The capacity of the drum of the Rock Island Model 70 Tractor Winch is sufficient to spool 150 to 175 feet without piling up.

To raise a string of rods 40 feet with three working lines requires only 120 feet wound on the drum. When four working lines are used, the Rock Island Model 70 Winch still has sufficient capacity to handle without piling up.

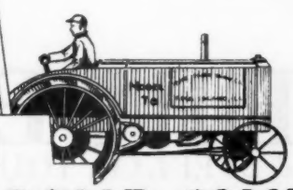
This tractor winch will pull 10,000 pounds on a single line.

It will pull the rods and tubing in any oil well, pull them slowly, stop at any point desired and then go on. It is equipped with roller bearing friction clutch. Speed can be increased as load decreases.

Drum and working lines are inside derrick—operator and control mechanism outside—complete safety for operator.

Four cylinder, heavy duty Waukesha motor with friction transmission; Dixie magneto with impulse starter; Stromberg carburetor; air cleaner; ball and roller bearings.

We also manufacture the "Heider" Tractor Winch.



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REPUBLIC
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PIPE & CASING

MORE RIGS IN JANUARY BUT LESS COMPLETIONS THAN IN DECEMBER

A slight increase in the number of rigs in January over the number in December was the only gain recorded in field operations in areas east of the Rocky Mountains during January as compared to December. This indicates a tendency to start more operations. There were 179 less wells completed in January than during December while the initial production of the new wells was 69,628 bbls. less than the flush output of completions during December.

SUMMARY OF ALL FIELDS

Field—	Comp.	Prod.	Dry	Gas
Oklahoma	309	41,625	99	63
Kansas	137	14,337	47	11
West Texas	82	336,862	14	1
Texas Panhandle	18	6,690	1	5
North Central Texas	179	7,813	83	9
East Central Texas	4	125	3	0
Southwest Texas	41	980	25	8
Gulf Coast	90	36,570	34	1
Louisiana	39	644	17	11
Arkansas	34	2,840	24	2
East Texas	15	15	2	12
Wyoming	9	423	1	1
Colorado	10	663	2	1
New Mexico	7	280	3	2
Montana	11	1,880	4	2
Eastern	252	1,077	34	67
Central Ohio	28	353	7	15
Lima	11	174	1	2
Michigan	1	20	0	0
Illinois	6	59	2	0
Indiana	17	463	3	0
Kentucky	57	1,638	16	1
North Carolina	1	0	1	0
Total January	1,358	455,531	423	214
Total December	1,537	525,159	505	215
Difference	179	69,628	82	1

SUMMARY OF NEW WORK

Field—	Rigs	Drlg.	Total
Oklahoma	138	710	848
Kansas	63	185	248
West Texas	111	319	430
Texas Panhandle	45	126	171
North Central Texas	99	377	476
East Central Texas	0	11	11
Southwest Texas	24	151	175
Gulf Coast	51	165	216
Louisiana	48	123	171
Arkansas	20	48	68
East Texas	6	19	25
Wyoming	20	149	169
Colorado	10	83	93
New Mexico	10	90	100
Utah	1	27	28
Montana	21	73	94
Eastern	89	299	388
Central Ohio	12	57	69
Lima	6	20	26
Michigan	3	10	13
Illinois	1	24	25
Indiana	5	51	56
Kentucky	14	140	154
Tennessee	0	39	39
Mississippi	9	20	29
Alabama	0	7	7
Florida	0	13	13
Total January	806	3,336	4,142
Total December	771	3,418	4,189
Difference	35	82	57

OKLAHOMA FIELDS

Summary of Wells Completed

County—	Comp.	Prod.	Dry	Gas
Carter	7	720	3	0
Creek	20	2,741	4	3
Garfield	4	79	1	0
Grady	17	402	3	11
Kay	17	200	9	7
Muskogee & Wagoner	29	177	17	3
Okfuskee	4	0	1	3
Okmulgee	19	120	8	7
Osage	23	7,409	3	4
Pawnee	6	32	2	2
Pontotoc	20	4,731	3	4
Pottawatomie	10	2,989	2	2
Seminole	60	20,304	16	9
Stephens-Cotton	19	470	9	4
Tulsa	12	52	7	1
Miscellaneous	42	1,199	11	12
Total January	309	41,625	99	63
Total December	293	59,647	92	52
Difference	16	18,022	7	11

Summary of Rigs and Wells Drilling

County—	Rigs	Drg.	Ttl.
Carter	7	18	25
Creek	20	62	82
Garfield	0	14	14
Grady	5	27	32
Grant	0	14	14
Kay	9	30	39
Lincoln	1	9	10
Logan	2	26	28
Muskogee and Wagoner	7	32	39
Okfuskee	8	26	34
Okmulgee	10	32	42
Osage	18	64	82
Pawnee	4	12	16
Payne	4	10	14
Pontotoc	1	39	40
Pottawatomie	5	47	52
Seminole	18	135	153
Stephens and Cotton	7	27	34
Tulsa	2	14	16
Miscellaneous	10	72	82
Total January	138	710	848
Total December	153	716	869
Difference	15	6	21

KANSAS FIELDS

Summary of Wells Completed

County—	Comp.	Prod.	Dry	Gas
Anderson	25	1,516	2	1
Butler	7	300	6	0
Cowley	6	15	3	2
Elk	9	160	3	1
Greenwood	25	2,070	8	0
Sumner	18	9,520	4	1
Miscellaneous	47	756	21	6
Total January	137	14,337	47	11
Total December	48	5,800	19	3
Difference	89	8,537	28	8

Summary of Rigs and Wells Drilling

County—	Rigs	Drg.	Ttl.
Butler	6	18	24
Cowley	7	26	33
Chautauqua and Elk	2	7	9
Greenwood	14	29	43
Marion	17	9	26
Sumner	8	34	42
Miscellaneous	9	62	71
Total January	63	185	248
Total December	50	184	234
Difference	13	1	14

NORTH LOUISIANA

Summary of Field Operations

	Comp.	Prod.	Dry	*Gas	Rigs	Drg.	Ttl.
Bienville	1	0	1	0	0	3	3
Bossier	2	0	2	0	5	19	24
Caddo	24	625	10	4	12	24	36
Caldwell	0	0	0	0	0	1	1
Catahoula	0	0	0	0	1	1	2
Claiborne	0	0	0	0	1	2	3
DeSoto	2	0	2	0	3	8	11
Franklin	0	0	0	0	0	3	3
Grant	0	0	0	0	1	2	3
LaSalle	0	0	0	0	0	2	2
Madison	0	0	0	0	0	1	1
Monroe distric.	2	0	0	2	10	14	24
Natchitoches	0	0	0	0	0	1	1
Rapides	0	0	0	0	1	1	2
Red River	0	0	0	0	0	2	2
Richland	3	0	0	3	6	18	24
Sabine	3	19	2	0	3	6	9
Webster	2	0	0	2	5	12	17
West Carroll	0	0	0	0	0	1	1
Winn	0	0	0	0	0	3	3
Total	39	644	17	11	48	123	171
Dec.	67	1,543	19	28	47	121	168
Difference	28	899	2	17	1	2	3

*Gas production: Caddo, 13,300,000; Monroe district (Ouachita Parish), 6,000,000; Richland, 97,132,000; Webster, 36,176,000; total, 152,608,000.

ARKANSAS

Summary of Field Operations

	Comp.	Prod.	Dry	*Gas	Rigs	Drg.	Ttl.
Bradley	0	0	0	0	1	1	1
Clark	0	0	0	0	1	1	2
Clay	0	0	0	0	0	1	1
Cleveland	1	0	1	0	0	0	0
Columbia	0	0	0	0	1	3	4
Drew	1	0	1	0	0	0	0
Faulkner	0	0	0	0	0	1	1
Franklin	0	0	0	0	0	1	1
Garland	0	0	0	0	0	2	2
Grant	0	0	0	0	0	1	1
Hempstead	1	0	1	0	0	0	0
Jackson	0	0	0	0	0	1	1
Lafayette	0	0	0	0	0	1	1
Lincoln	0	0	0	0	0	1	1
Little River	0	0	0	0	0	1	1
Miller	1	0	1	0	2	0	2
Nevada County	1	50	0	0	9	5	14
Ouachita	6	15	4	1	1	2	3
Poinsett	0	0	0	0	0	1	1
Pope	0	0	0	0	0	1	1
Union	23	2,775	16	1	6	23	29
Woodruff	0	0	0	0	0	1	1
Total	34	2,840	24	2	26	48	68
Dec.	22	571	9	4	11	70	81
Difference	12	2,269	15	2	9	22	13

*Gas production: Ouachita County, 4,700,000; Union, 4,000,000; total, 8,700,000.

EAST TEXAS

Summary of Field Operations

	Comp.	Prod.	Dry	*Gas	Rigs	Drg.	Ttl.
Cass	0	0	0	0	0	2	2
Harrison	6	0	1	5	2	8	10
Marion	0	0	0	0	0	1	1
Panola	9	15	1	7	4	6	10
Shelby	0	0	0	0	0	2	2
Total	15	15	2	12	6	19	25
Dec.	12	34	4	9	9	16	25
Difference	3	19	2	0	3	3	0

*Gas production: Harrison County, 17,000,000; Panola, 24,925,820; total, 41,925,820.

EAST CENTRAL TEXAS

Summary of Field Operations

County—	Comp.	Prod.	Dry	Gas	Rigs	Drg.	Ttl.
Limestone	1	125	0	0	0	5	5
Freestone	2	....	2	0	0	1	1
Cherokee	1	....	1	0	0	0	0
Anderson	0	....	0	0	0	2	2
Navarro	0	....	0	0	0	3	3
Total January	4	125	3	0	0	11	11
Total Dec.	6	240	5	0	2	8	10
Difference	2	115	2	0	2	3	1

WEST TEXAS FIELDS

Summary of Wells Completed

County—	Comp.	Prod.	Dry	Gas
Coke	1	0	1	0
Crane	6	5,770	0	0
Crockett	5	332	2	0
Ector	1	0	1	0
Fisher	0	0	0	0
Gaines	1	0	1	0
Howard	13	1,036	2	0
Mitchell	1	85	0	0
Pecos	30	300,540	3	0
Reagan	5	857	0	0
Runnells	1	0	1	0
Stonewall	1	0	1	0
Taylor	1	0	1	0
Upton	3	3,725	0	0
Winkler	13	24,517	0	1
Total West Texas, January	82	336,862	14	1
Total West Texas, December	117	401,014	21	0
Difference	35	64,152	7	1

NORTH CENTRAL TEXAS

Summary of Wells Completed

County—	Comp.	Prod.	Dry	Gas
Archer	21	379	11	0
Brown	36	907	23	3
Callahan	4	40	2	1
Coleman	6	345	3	1
Cooke	2	10	1	0
Eastland	14	2,821	4	3
Foard	1	0	1	0
Haskell	1	0	1	0
Jack	1	62	0	0
McCulloch	3	0	3	0
Montague	5	225	0	0
Palo Pinto	4	35	3	0
Shackelford	19	1,302	2	0
Stephens	10	73	8	1
Throckmorton	4	40	2	0
Wichita	20	199	9	0
Wilbarger	19	1,364	5	0
Young	9	11	7	0
Total January	179	7,813	83	9
Total December	241	8,452	123	10
Difference	62	639	40	1

NORTH CENTRAL AND WEST TEXAS

Summary of Rigs and Wells Drilling

County—	Rigs	Drlg.	S. D.	Total
West Texas—				
Crane	3	12	..	15
Crockett	3	3	5	11
Howard	16	21	6	43
Jones	1	4	4	9
Mitchell	2	2	1	5
Pecos	34	50	9	93
Reagan	10	3	11	24
Runnells	3	7	1	11
Upton	4	4	2	10
Winkler	26	82	10	119
Misc. counties	9	37	44	90
West Texas totals, January	111	226	93	430
North Central Texas—				
Archer	9	14	1	24
Brown	6	22	10	39
Callahan	7	10	10	27
Coleman	6	23	21	50
Cooke	2	4	6	12
Eastland	10	27	5	42
Jack	3	10	11	24
Montague	7	9	3	19
Palo Pinto	2	3	9	14
Shackelford	4	11	5	20
Stephens	3	12	6	21
Throckmorton	..	1	..	1
Wichita	6	18	4	28
Wilbarger	22	34	4	61
Young	11	27	20	58
Misc. counties	..	7	29	36
North Central Texas totals, January	99	233	144	476
Grand total North Central and West Texas, Jan., 1928	210	459	237	906
Grand total North Central and West Texas, Dec., 1927	193	471	229	893
Difference	17	12	8	13

SOUTHWEST TEXAS FIELDS

Summary of Field Operations

	Comp.	Pro.	Dry	Gas	Rig	Drg.	Ttl.
Mirando	13	695	8	2	6	17	23
Luling	1	25	0	0	1	4	5
Kingsville	1	60	0	0	2	1	3
Refugio	0	0	0	0	0	0	0
Adams Gas Field	3	0	1	2	1	2	3
Somerset	0	0	0	0	0	0	0
Dale Field	3	200	0	0	2	0	2
Miscellaneous	20	0	16	4	12	127	139
Ttl. Jan., '28	41	980	25	8	24	151	175
Ttl. Dec., '27	66	241	40	11	17	162	179
Difference	25	739	15	3	7	11	4

TEXAS PANHANDLE

Summary of Rigs and Wells Drilling

County—	Rigs	Drlg.	S. D.	Total
Carson	2	1	2	5
Gray	28	39	7	74
Hutchinson	8	15	4	27
Wheeler	4	8	2	14
Misc. counties	3	13	35	51
Totals January	45	76	50	171
Totals December	34	78	45	157
Difference	11	2	5	14

Summary of Wells Completed

County—	Comp.	Prod.	Dry	Gas
Carson	2	0	0	2
Gray	7	5,867	0	0
Hutchinson	6	763	1	1
Potter	1	0	0	1
Wheeler	2	60	0	1
Total January	18	6,690	1	5
Total December	32	11,194	6	3
Difference	14	4,504	5	2

ROCKY MOUNTAIN AREA

WYOMING

Summary of Field Operations

District—	Cmp.	Prd.	Dry	Gas	Rigs	Drg.	Ttl.
Salt Creek	4	48	0	5	16	21	
B. Horn County	0	0	0	0	0	6	6
Carbon County	1	0	0	1	0	10	10
Converse County	1	75	0	0	1	3	4
Fremont County	1	200	0	0	1	8	9
Goshen County	0	0	0	0	0	1	1
Hot Spgs., Washakie Co'nties	0	0	0	0	1	1	2
Hot Spgs. C'nty	0	0	0	0	0	5	5
Johnson County	0	0	0	0	1	4	5
Natrona County	0	0	0	0	1	4	5
Niobrara County	1	100	0	0	3	5	8
Park County	0	0	0	0	3	28	31
Platte County	0	0	0	0	0	2	2
Sw'tw'tr County	1	0	1	0	1	10	11
Sublet County	0	0	0	0	1	29	30
Uinta County	0	0	0	0	1	3	4
Washakie C'nty	0	0	0	0	0	3	3
Weston County	0	0	0	0	1	11	12
Total, Jan.	9	423	1	1	20	149	169
Total, Dec.	17	517	6	0	19	160	179
Difference	8	94	5	1	1	11	10

COLORADO

Summary of Field Operations

County—	Comp.	Prd.	Dry	Gas	Rigs	Dlg.	Ttl.
Boulder	0	0	0	0	1	6	7
Fremont	6	525	1	0	1	14	15
Larimer	0	0	0	0	4	10	14
Moffat	1	136	0	0	3	10	13
Routt	1	2	0	0	0	5	5
Rio Blanco	0	0	0	0	1	3	4
Miscellaneous	2	0	1	1	0	35	35
Total, Jan.	10	663	2	1	10	83	93
Total, Dec.	7	2,616	0	1	16	83	99
Difference	3	1,953	2	0	6	0	6

NEW MEXICO

Summary of Field Operations

	Cmp.	Prd.	Dry	Gas	Rgs	Dlg.	Ttl.
Total, Jan.	7	280	3	2	10	90	100
Total, Dec.	6	244	4	0	7	96	103
Difference	1	36	1	2	3	6	3

UTAH

Summary of Field Operations

	Comp.	Prod.	Dry	Gas	Rigs	Drg.	Ttl.
Total, Jan.	0	0	0	0	1	27	28
Total, Dec.	0	0	0	0	2	25	27
Difference	0	0	0	0	1	2	1

MONTANA

Summary of Field Operations

District—	Comp.	Prod.	Dry	Gas	Rigs	Drg.	Ttl.
Cat Creek	0	0	0	0	0	4	4
Kevin-Sunburst	7	1,880	1	1	11	13	25
Misc.	4	0	3	1	10	56	66
Total Jan.	11	1,880	4	2	21	73	94
Total Dec.	15	50	9	3	19	76	95
Difference	4	1,830	5	1	2	3	1

EASTERN FIELDS

Wells Completed

Fields—	Comp.	Prod.	Dry	Gas
Allegany	26	39	1	2
Bradford	68	156	1	7
Middle Field	7	6	1	0
Venango-Clarion	11	10	1	2
Butler-Armstrong	5	6	1	1
S. W. Penna	13	38	6	1
West Virginia	78	168	17	40
S. E. Ohio	44	654	6	14
Totals January	252	1,077	34	67
Totals December	301	997	37	57
Difference	49	80	3	10

Summary of Work Under Way

Fields—	Rigs	Drlg.	Ttl.
Allegany	9	21	30
Bradford	10	49	59
Middle Field	0	3	3
Venango-Clarion	2	10	10
Butler-Armstrong	8	6	14
S. W. Penna	3	34	37
West Virginia	34	106	140
S. E. Ohio	25	70	95
Totals January 31	89	299	388
Totals December 31	84	343	427
Difference	5	44	39

CENTRAL OHIO

Summary of Field Operations

	Comp.	Prod.	Dry	Gas	Rigs	Drg.	Ttl.
Knox	0	0	0	0	2	1	3
Ashland	3	0	2	1	0	15	15
Medina	1	10	0	0	1	4	5
Lorain	3	0	0	3	0	4	4
Wayne	1	0	1	0	2	5	7
Holmes	7	160	1	5	3	5	8
Coshocton	3	150	2	0	1	3	4
Cuyahoga	6	25	0	4	0	8	8
Guernsey	1	8	0	0	0	6	6
Gallia	2	0	0	2	3	1	4
Starke	0	0	0	0	0	1	1
Fairfield	0	0	0	0	0	1	1
Richland	0	0	0	0	0	1	1
Carroll	0	0	0	0	0	1	1
Summitt	0	0	0	0	0	1	1
Licking	1	0	1	0	0	0	0
Total Jan.	28	353	7	15	12	57	69
Total Dec.	38	10	12	25	15	71	86
Difference	10	343	5	10	3	14	17

LIMA FIELD

Summary of Field Operations

	Comp.	Prod.	Dry	Gas	Rigs	Drg.	Ttl.
Wood	1	12	0	0	3	1	4
Hancock	2	50	0	0	0	3	3
Allen	1	50	0	0	0	2	2
Auglaize	0	0	0	0	0	7	7
Sandusky	0	0	0	0	0	1	1
Mercer	0	0	0	0	0	4	4
Van Wert	1	2	0	0	0	1	1
Seneca	2	10	1	0	0	1	1
Lucas	1	0	0	1	0	1	1
Ottawa	1	0	0	1	0	0	0
Shelby	1	10	0	0	0	0	0
Hardin	1	40	0	0	1	0	1
Darke	0	0	0	0	0	1	1
Wyandot	0	0	0	0	0	1	1
Total Jan.	11	174	1	2	6	20	26
Total Dec.	14	205	3	0	7	25	32
Difference	3	31	2	2	1	5	6

INDIANA

Summary of Field Operations

	Comp.	Prod.	Dry	Gas	Rigs	Drg.	Ttl.
Wells	0	0	0	0	0	1	1
Blackford	0	0	0	0	0	2	2
Jay	1	0	1	0	0	3	3
Grant	0	0	0	0	0	2	2
Huntington	0	0	0	0	0	1	1
Randolph	0	0	0	0	0	1	1
Delaware	0	0	0	0	0	1	1
Gibson	4	23	1	0	0	7	7
Pike	2	95	0	0	0	0	0
Daviess	0	0	0	0	0	4	4
Sullivan	4	165	0	0	0	4	4
Vigo	5	180	0	0	0	5	5
Allen	0	0	0	0	2	2	4
Knox	0	0	0	0	0	1	1
Dubois	0	0	0	0	0	1	1
Johnson	0	0	0	0	3	0	3

Benton	0	0	0	0	0	1	1
Marion	0	0	0	0	0	1	1
Fountain	0	0	0	0	0	1	1
Martin	0	0	0	0	0	2	2
Monroe	0	0	0	0	0	1	1
Spencer	1	0	1	0	0	0	0
Bartholomew	0	0	0	0	0	1	1
Miami	0	0	0	0	0	1	1
White	0	0	0	0	0	1	1
Montgomery	0	0	0	0	0	1	1
Lagrange	0	0	0	0	0	1	1
Wabash	0	0	0	0	0	1	1
Greene	0	0	0	0	0	1	1
Henry	0	0	0	0	0	1	1
Harrison	0	0	0	0	0	2	2
Total Jan.	17	463	3	0	5	51	56
Total Dec.	14	40	10	2	5	63	68
Difference	3	423	7	2	0	12	12

ILLINOIS

Summary of Field Operations

	Comp.	Prod.	Dry	Gas	Rigs	Drg.	Ttl.
Clark	0	0	0	0	0	3	3
Cumberland	0	0	0	0	0	2	2
Crawford	1	0	1	0	1	5	6
Lawrence	1	10	0	0	0	3	3
Wabash	3	41	1	0	0	4	4
Morgan	1	8	0	0	0	0	0
Marshall	0	0	0	0	0	1	1
Macon	0	0	0	0	0	1	1
Madison	0	0	0	0	0	2	2
Shelby	*0	0	0	0	0	1	1
St. Clair	0	0	0	0	0	1	1
Tazwell	0	0	0	0	0	1	1
Total Jan.	6	59	2	0	1	24	25
Total Dec.	12	55	7	0	4	25	29
Difference	6	4	5	0	3	1	4

MICHIGAN

Summary of Field Operations

	Comp.	Prod.	Dry	Gas	Rigs	Drg.	Ttl.
Saginaw	0	0	0	0	2	2	4
Gratiot	1	20	0	0	0	0	0
Muskegon	0	0	0	0	0	1	1
Shiawassee	0	0	0	0	0	1	1
Crawford	0	0	0	0	0	1	1
Charlevoix	0	0	0	0	0	1	1
Midland	0	0	0	0	0	1	1
Roscommons	0	0	0	0	0	1	1
Sanilac	0	0	0	0	0	1	1
Isabelle	0	0	0	0	1	0	1
Alpena	0	0	0	0	0	1	1
Total Jan.	1	20	0	0	3	10	13
Total Dec.	10	58	5	1	2	10	12
Difference	9	38	5	1	1	0	1

KENTUCKY-TENNESSEE

Summary of Field Operations

	Comp.	Prod.	Dry	Gas	Rigs	Drg.	Ttl.
Warren	4	10	1	0	0	9	9
Allen	1	1	0	0	0	13	13
Barren	4	45	0	0	0	13	13
Ohio	27	1,435	11	0	0	47	47
Daviess	6	60	2	0	13	22	35
McLean	0	0	0	0	0	5	5
Hancock	0	0	0	0	1	2	3
Cumberland-Monroe	0	0	0	0	0	1	1
Clinton	0	0	0	0	0	1	1
Butler	0	0	0	0	0	2	2
Hopkins	0	0	0	0	0	1	1
Henderson-Union	1	25	0	0	0	2	2
Muhlenberg	0	0	0	0	0	1	1
Breckenridge	1	20	0	0	0	1	1
Wayne	2	5	0	0	0	2	2
Estill	3	10	1	0	0	7	7
Lee-Owsley	0	0	0	0	0	2	2
Wolfe	1	5	0	0	0	0	0
Johnson-Magoffin	6	22	1	0	0	3	3
Floyd-Knott	1	0	0	1	0	2	2
Knox	0	0	0	0	0	4	4
Total Ky.	57	1,638	16	1	14	140	154
Totall Tenn.	0	0	0	0	0	39	39
Total Miss.	0	0	0	0	9	20	29
Total Ala.	0	0	0	0	0	7	7
Total Fla.	0	0	0	0	0	13	13
N. Carolina	1	0	1	0	0	0	0
Total Jan.	58	1,638	17	1	23	219	242
Total Dec.	82	2,260	32	5	14	211	225
Difference	24	622	15	4	9	8	17

WILDCAT OPERATIONS IN WEST TEXAS

(Continued from Page 54)

CROCKETT COUNTY

V. T. Bolin & Co.'s No. 1 P. C. Coates, NW cor. SW Sec. 4, Blk. 2, I. & G. N. Sur. — Shut down 2,110 ft.
Dixie Oil Co.'s No. 1 George Thompson — Location.
J. S. Cosden, Inc., No. 1 Paul Perner, SW cor. Sec. 36, Blk. 2, I. & G. N. Sur. — Fish. casing 635 ft.
Humble O. & R. Co.'s No. 2 P. J. Sorg Est. — Underreaming 10-in. 745 ft.
James Kelly et al's (was Corbett & Gill's) No. 1 Todd, C NE Sec. 43, Blk. WX, G. C. & S. F. Sur. — Top salt 993 ft.; show oil 1,948 ft.; 700 ft. sulphur water in hole 2,450 ft.; total depth 2,605 ft.; plugged back to 1,948 ft. and shot 120 qts. 1,909-45 ft.; hole filled 250 ft. with water with slight scum of oil.
Van McPhail's No. 1 George Thompson — Location.
Van Phail et al's No. 1 George Thompson — Location.
Osage Oil Corp.'s No. 2 Halff, 1,200 ft. down river from No. 1 in Sec. 70, Blk. 1, I. & G. N. Sur. — Drlg. 875 ft.
Osage Oil Co.'s No. 3 H. M. Halff, Sec. 70, Blk. 1, I. & G. N. R. R. Sur. — New location.
W. W. Donnelly & Young's No. 1 Massey, Sec. 29, Blk. U-V — Shut down 520 ft.
World Oil Co.'s No. 1 Schneeman-B, Sec. 50, Blk. BB, G. C. & S. F. Sur. — Top salt 1,070 ft.; hole full salt water 2,210-15 ft.; set 6-in. 2,540 ft.; drlg. 2,560 ft.
Young & Donelly's No. 1 J. M. Shannon, C Sec. 11, Blk. 9, D. & S. E. Sur. — 7,000,000 ft. gas at 1,662 ft.; shut down 1,676 ft.

CULBERSON COUNTY

Deep Rock Oil Co.'s No. 2 Kioh-Rumsey, Sec. 21, Blk. 29, T. & P. Sur., T-1 (NE of No. 1) — Shut down 1,210 ft.
Deep Rock Oil Co.'s No. 1 J. P. Seay — Shut down 875 ft.
Hickey & Stiver's No. 1 C. O. Finley — Shut down 65 ft. (cor. depth).
James H. Gardner et al's No. 1 Radford, C SE Sec. 29, Blk. 62, Public School Land Sur. — Fish. 750 ft.
Scott & Dittman's No. 1 Miller, SW cor. NW NE, Sec. 1, School Blk. 97 — Rainbow 1,056 ft.; drlg. 1,290 ft.

ECTOR COUNTY

Shoup et al's No. 2 C. P. Davis — Location.

EL PASO COUNTY

Ellsworth & Haunt's No. 1 McKinney & Jones — Rig; drlg. water well.

FISHER COUNTY

Cranfill & Reynold's No. 1 J. A. Young, Sec. 208, B. B. B. & C. Sur. — Hole full salt water 2,400-35 ft.; swedging 8-in. 2,870 ft.; drlg. by tools.
Marland Oil Co. and Vacuum Oil Co.'s No. 1 J. H. R. Lagow — Hole full salt water 3,530 ft.; set 6-in. 3,670 ft.; dry and aban. 3,850 ft.
R. W. Raney's No. 2 Maberry, Sec. 56, Blk. 1, T. & P. Sur. — Shut down for orders 2,725 ft.
The Texas Company's No. 1 D. S. Stevens, C SW SE, SE Sec. 79, Blk. 1, H. & T. C. Sur. — Hole full water 2,570-2,615 ft.; top pay 3,239 ft.; total depth 3,275 ft.; swabbed 182 bbls.

FOARD COUNTY

Clark et al's No. 1 Atkins — Lime 1,580-1,930 ft.; show gas 1,885 ft.; drlg. 2,560 ft.
Fain-McGaha Oil Corp. and Roxana's No. 2 J. F. Mathews, Blk. 3, G. C. & S. F. Sur. — Location.

GARZA COUNTY

Emerald Oil Co.'s No. 2 D. Boren — Spudding.
Gulf Prod. Co.'s No. 1 E. P. Swenson-A, Sec. 67, Blk. 2, H. & G. N. Sur. — Top salt 495 ft.; top lime 2,075 ft.; drlg. gray lime 4,125 ft.
Marland Oil Co.'s No. 1 B. F. Pippin, C NW Sec. 1,210, W. C. Young Sur. (3,750-ft. test) — New location.

GLASSCOCK COUNTY

Texon & Marland's No. 1 Settles — Set 10-in. 1,420 ft.; top lime 2,015 ft.; hole full sulphur water 2,710-50 ft.; shut down 3,075 ft.
Meriwether Oil Co.'s No. 1 L. S. McDowell, CNL Sec. 34, Blk. 34, T-2-S, T. P. R. R. Sur. — New location.
R. R. Penn's No. 1 Hughes & Johnson — Location.

HOWARD COUNTY

Bristow & Merrick's No. 1 Dora Roberts — Drlg. 670 ft.
Coyle-Concord Oil Co.'s No. 3 Dora Roberts, Sec. 156, Blk. 29 — Drlg. 1,845 ft.
Coyle-Concord Oil Co.'s No. 4 Dora Roberts, Sec. 156, Blk. 29, W. & N. W. — Drlg. 1,500 ft.
Dixie Oil Co.'s No. 1 H. R. Clay — Shut down 3,347 ft.
Green O. & R. Co.'s No. 1 H. R. Clay, SE cor. Sec. 127, Blk. 29, W-NW Sur. — New location.
Henshaw et al's No. 1 W. R. Settles, SW SE SW Sec. 135, Blk. 29 — Hole full sulphur water 1,325-30 ft.; shut down 1,900 ft.
Lockhart & Co.'s No. 1 Dora Roberts, Sec. 157, Blk. 29... — Drlg. 2,562 ft.
Lockhart et al's No. 2 Dora Roberts, Sec. 157, Blk. 29, W. & N. W. — M. O. G.
Marland Oil Co.'s No. 1 Clay-E, NW NE SE Sec. 138, Blk. 29 — Pay 2,480-2,500 ft.; swabbed approx. 160 bbls.; hole full salt water 3,360-70 ft.; total depth 3,656 ft.; plugged back to 2,940 ft.; tested 5 bailers oil 2,880-2,920 ft.; shot 100 qts. 2,880-2,920 ft.; tested 10 bbls. oil and 12 bbls. water; will plug back to 2,720 ft.; filling up 100 ft. per day in 6-in.; total depth 2,725 ft.
Marland Oil Co.'s No. 1 Richardson, C NW Sec. 12, Blk. 32, T. & P. Sur., T-1-S — Top salt 870 ft.; hole full salt water 2,235-2,300 ft.; hole full sulphur water 2,790-2,800 ft. and 3,010 ft.; drlg. 3,170 ft.
Marland Oil Co. and Zoch's No. 1 Jones, Sec. 32, Blk. 27, T. & P. Sur., elev. 2,218 ft. — Top lime 2,250 ft.; shut down 3,215 ft.; contract depth; preparing to plug.
Mays, Nixon & Flowers' No. 1 W. J. Flowers — Little salt at 976-97 ft.; top salt 1,114 ft.; shut down 1,390 ft.
Miley and Marland Oil Co.'s No. 1 C. D. Read, C NW, Sec. 12, Blk. 31, T. & P. Sur., T-1-N — Spudded and shut down 5 ft.
Oeland & McCaldin's No. 1 Dora Roberts, NW cor. SE Sec. 137, Blk. 29 — Drlg. 1,420 ft.
Owens & Sloan's No. 2 Dora Roberts, SW cor. SE Sec. 136, Blk. 29 — Swabbed 200 bbls. in 3 hrs. at 2,560-92 ft.; filled 1,000 ft. oil 2,955-58 ft. in 1½ hrs.; total depth 2,990 ft.; agitating to deepen.
Owen & Sloan's No. 3 Dora Roberts, Sec. 136, Blk. 29 — Shut down 240 ft.
Owen & Sloan's No. 4 Dora Roberts, Sec. 136, Blk. 29 — Location.
Schermerhorn Oil Co.'s No. 1 Dora Roberts — 150 ft. oil 2,557-2,600 ft.; cem. 6-in. 2,940 ft.; drlg. 2,959 ft.
Schermerhorn Oil Co.'s No. 1-A Dora Roberts, SW cor. NE — Gas 1,890 ft.; total depth 1,893 ft.; 1,400,000 ft. gas; temp. completed.
Sun Oil Co.'s No. 1 W. R. Settles, Sec. 135, Blk. 29 — Shut down 1,480 ft.
Sprague Oil Co.'s No. 1 Dora Roberts — Spudded and shut down.
Sweeney et al's No. 3 Chalk, Sec. 124, Blk. 29 — Location.
Sweeney et al's No. 4 Chalk, Sec. 124, Blk. 29 — Location.
Texon O. & L. Co. and Marland Oil Co.'s No. 1 Mrs. Connaly, NE cor. Sec. 15, Blk. 33, T. & P. Sur. T-1-N — Top salt 1,425 ft.; hole full salt water 1,760-1,800 ft.; show oil 3,065 ft.; hole full sulphur water 3,500-55 ft.; hole full water 3,925-50 ft.; show oil 4,125-36 ft.; preparing to plug 4,400 ft.
Texon O. & L. Co. and Marland Oil Co.'s No. 2 W. R. Settles — Shut down for storage; sand at 1,280-.84 ft.; total depth 1,298 ft.
Texon & Marland's No. 2 W. R. Settles-A — Rig; drlg. water well.
Weekly Oil Corp. et al's No. 1 Dora Roberts, Sec. 156, Blk. 29 — Drlg. 1,260 ft.

HUDSPETH COUNTY

American Land Co.'s No. 1 Lockhart and Roseborough, C SE Sec. 5, School Blk. 21 — Shut down 180 ft. (cor. depth).
Western States Oil Co.'s No. 1 Moore, C SE Sec. 16, Blk. 71, T. & P. Sur., T-6 — Drlg. 1,175 ft.
Western States Oil Co.'s No. 1 Gardner & Moseley, NE NW Sec. 12, Blk. 18 — Drlg. 1,000 ft.

IRION COUNTY

P. E. Hill's No. 1 Horney, NE cor. Sec. 2, Blk. 3, H. & T. C. Sur. — New location.
F. E. Webb et al's No. 1 J. M. Nutt — Spudded and shut down 125 ft.

JEFF DAVIS COUNTY

J. K. Hughes Dev. Co.'s No. 2 Means — Redrilling hole 2,430 ft.
Humble O. & R. Co.'s No. 2 Crecencio Flores, 1,130 ft. N and 350 ft. E of SW cor. Sec. 34, Blk. 58, T. & P. Sur., Twp. 3 — Run. 8-in. 3,820 ft.

JONES COUNTY

Garland & Diamond's No. 1 E. D. Glynn, SE cor. Sec. 18, Deaf & Dumb Asylum Lands — Shut down 2,430 ft.
Hutson & Weaver's No. 1-A Smith — Hole full water 2,240-50 ft.; show oil 2,498-2,502 ft.; cleaning out.
Phillips Pet. Co.'s No. 1 O. H. Pomroy, SE cor. SW Sec. 16, Blk. 18 — Underreaming 8-in. 2,255 ft.
W. G. Stough et al's No. 1 W. C. Bennett, Sec. 42, Orphan Asylum Sur. — Shut down 800 ft.
W. G. Stough and others' No. 1 J. P. Willis, J. C. Patterson Sur. No. 2 — Shut down 1,740 ft.

KENT COUNTY

Marland and Texon's No. 1 Bilby — Shut down 270 ft.; 20-in. casing.

KNOX COUNTY

Deep Rock Oil Co.'s No. 1 Moore — Drlg. 1,000 ft.
Deep Rock Oil Co.'s No. 1 Big Four, 1,270 ft. S and 2,590 ft. W of NE cor. Sec. 31, Blk. 4 — Shut down 3,513 ft.; may deepen to 4,000 ft.

LOVING COUNTY

Delaware Oil Co.'s No. 1 Lockhart & Ramsey — Drlg. 560 ft.
Lockhart Bros.' No. 1 fee, Sec. 85, Blk. 33, H. & T. C. Sur. — Fishing 2,260 ft.
Owens & Sloan's No. 1 W. D. Johnson, C SE Sec. 20, Blk. 53, T-2, T. & P. Sur., elev. 2,934 — Top salt 955 ft.; drlg. 2,980 ft.

LYNN COUNTY

Elpo Oil Co.'s No. 1 Nevols, NW cor. Sec. 6, Blk. C-42, School Lands — Shut down 675 ft.
Hart Oil Corp.'s No. 1 C. O. Edwards A-1 — Shut down 576 ft.

MENARD COUNTY

Carpenter & Robbins' No. 1 Kothman, NW cor. SW SW Sec. 22 — 165 ft. 34.6 grav. oil at 414-15 ft.; fishing 415 ft.
J. C. Barnett and T. H. Drake's No. 1 Callan City Co. Ranch, Sec. 22 — Drlg. 528 ft.
Renfro et al's No. 1 J. Davis — Shut down 260 ft.

MIDLAND COUNTY

Gholson et al's (was Orbit Oil Co.'s) No. 1 Moreland, C SE Sec. 17, Blk. 39, T. & P. Sur., T-1-S — Drlg. 960 ft.
Shoup et al's No. 1 Roy Parks — Moving in material.

MITCHELL COUNTY

Boehm Drilling Co.'s No. 1 Harry Hyman, CNW SE Sec. 90, Blk. 29, W. & N. W. Sur. — Drlg. 288 ft.
California Co.'s No. 1 Foster, Sec. 11, Blk. 28, T. & P. — Top lime 1,830 ft.; show oil 2,275 ft.; shut down 2,725 ft.
Magnolia Oil Co.'s No. 5 Foster, Sec. 17, Blk. 29, T. & P. — R. U. S. T.
Paul Teas et al's No. 1 A. C. Mills, NW cor. C. A. O'Keefe Sub. 11, J. P. Smith Sur. — Run. casing 1,100 ft.; drlg. 1,300 ft.
Robert Thraves' No. 1 C. Way, Sec. 91, Blk. 27, T. & P. Sur., T-1-N — Total depth 2,508 ft.; shut down.

NOLAN COUNTY

Herbert Oil Co.'s (was McClesky and others') No. 1 Pepper, SE cor. SW Sec. 29, Blk. 22, T. & P. Sur. — Rigged up and shut down.
Zweifel et al's No. 1 Longbotham, C SE Sec. 130, Blk. 1, H. & G. N. Sur. — Shut down 3,575 ft.

PECOS COUNTY

George Anderson's No. 1 Sherbine Bros. — Top salt 928 ft.; shut down 2,700 ft.
Benedum & Trees' No. 1 B. T. Corder — New location.
Bob Elmore's No. 2 Holmes — Drlg. 400 ft.
Buell & Hagan's No. 1 Pryor & Wilson — Location.
Diamond Pet. Co.'s No. 1 Blackstone & Slaughter — Location.
M. C. Dibble & Hale's No. 1 Bonebrake, Sec. 115, Blk. 8, H. & G. W. Sur., elev. 2,555 ft. — Shut down 640 ft.
Everett et al's No. 1 J. Fields — Spudded and shut down.
Gibson Oil Corp.'s No. 1 R. R. Russell — Shut down 1,010 ft.
George A. Henshaw et al's No. 1 B. T. Corder, C SW Sec. 74, Blk. 2, C. C. S. D. Sur. — Top salt 1,130 ft.; fishing 2,150 ft.
Kershaw & Livingston's No. 1 Cannon — Drlg. 770 ft.
Mid-Kansas O. & G. Co.'s No. 1 Pryor &Wilson, NW cor. Sec. 3, Blk. 5, T. C. R. R. Sur. — Rigged up and shut down.
Miller & McNees' No. 1 W. C. Tyrrell — Location.
Moody Oil Corp.'s No. 1 B. T. Corder, C SW Sec. 77, Blk. 2, C. C. S. D. Sur. — Fishing 2,965 ft.

(This Space Contributed by a Member of the Mid-Continent Oil and Gas Association)

What the Press of Oklahoma Thinks of Russell's Repeated Attempts to Persecute the Oil Producing Industry

Although the people of Oklahoma are tired and disgusted with initiative petitions on the oil tax question, Campbell Russell of Oklahoma City has caused the filing of another petition to increase the tax upon oil and gas production. This is the FIFTH petition filed and sponsored by the same party. All of the proposed measures have been similar. One was rejected by the people by an overwhelming majority; two more have failed because of insufficient signatures, and the fourth is still before the secretary of state undisposed of, although the evidence indicates that it is shot with forgery and other grave irregularities which will probably preclude its appearance upon the ballot. In evident abandonment of this fourth petition, Russell has filed Petition 102-103 and has again started to solicit signatures. Evidence in the recent inquiry before the secretary of state showed that the Initiative and Referendum law was being abused by paid circulators who were misrepresenting the contents of the petition. The oil industry, therefore, warns the people of Oklahoma against the new petition and the methods that may be used to obtain signatures from the unsuspecting public.

The Subjoined Excerpts from the Press of the State Show the Public Reaction to the Efforts of the Agitators to Saddle an Unjust Burden Upon Oklahoma's Highly Valued Industry

ANOTHER OIL TAX PETITION

People are to have another opportunity to petition for the submission of a measure to increase gross production taxes on minerals. Signatures on a petition backing a similar measure have been disputed, and this is generally regarded as a move to overcome the alleged flaw in the earlier petition. Campbell Russell appears among the sponsors of this latest effort, and his experience in this line and his standing as a public-spirited citizen improve the likelihood of obtaining sufficient signers.

It isn't necessary to question the motives of Mr. Russell to dispute the wisdom of the course he proposes. Oil pays the state tremendous revenue, under the present law. Oil is a mighty force in Oklahoma, aside from its contributions to the state's coffers. It helps to build cities, employs thousands of men and aids agriculture by the purchase of leases. Such an industry should be encouraged at all times. Now, when low prices are a handicap, it should not be harassed by higher taxes, which the oil men insist would be unjust. Similar proposals have been defeated by the voters and rejected by the legislature, and this one should share the same fate.

Oklahoma City Times 1-13-28

Campbell Russell, the nuisance of the people of the state, is having trouble again with his tax petition. Wonder when he will find he is a nuisance to the folks?

Tuttle Times 1-13-28

VOLUNTEER WORKERS TO CIRCULATE NEW PETITION

OKLAHOMA CITY, Jan. 14.—(AP)—Gross production tax on minerals would be increased from ½ of 1 per cent to 2 per cent under initiative petition No. 102 prepared by Campbell Russell, secretary of the Oklahoma Taxpayers League, as a substitute for initiative petition No. 101, the sufficiency of which has been challenged by representatives of oil and mineral interests.

Initiative petition No. 101 provides for an increase to only 1½ per cent on minerals.

The latest petition also differs from No. 101 in that road funds provided by the tax would be used by the county commissioners of the various counties instead of by the state highway commission. The funds could be used upon lateral roads if desired.

Admitting that many of the signatures on petition No. 101 were forged because of the employment of paid circulators, Mr. Russell has announced that voluntary workers will circulate the new petition.

A committee of seven men will select the circulators. They are: I. W. Gray of Hydro; H. O. Miller of Norman; Alfred G. Gray of Weatherford; S. A. Holcomb of Hobart; W. M. Rice, James A. Wilson and Benjamin F. Lee of Oklahoma City.

Perry Journal 1-14-28

YOU FOLLOW jumping-jack "Weasel of Warner" Cam Russell in his oil tax petition gyrations. He has me dizzy and I must quit.

Guthrie Leader 1-10-28

AN AILMENT DIAGNOSED

SWORN testimony given in a series of hearings still in progress before Secretary of State Graves Leeper at Oklahoma City has gone far toward disclosing what ails our initiative and referendum.

The hearings are on the protest of oil, gas and mineral producers against sufficiency of an initiative petition which seeks another popular vote on a proposal to add some seven or eight million dollars to their annual tax bill.

In common justice, the tax question by itself should be deemed a closed issue for the present at least. Just a short year ago 400,000 Oklahoma voters went to the polls and only 70,000 would give their endorsement to a tax-gouge bill like the one pending now.

But American liberty protects, among others, the Oklahoma tax agitator and now we have Petition 101 with its 51,000 alleged signatures. The temporary disposition of this document rests with Secretary Leeper, but in a broader sense it promises ultimate surcease from the abusers of the initiative and referendum.

And that brings us to the diagnosis.

Circulators hired at 5 cents per name by the author of the bill, delivered the signatures. Some of the most active called as witnesses, testified they would not identify and swear to a single signature on their petitions as authentic. Handwriting experts said 75 per cent of the petition forms bore forgeries.

Circulators swore they were instructed to misrepresent the purpose of the petition—to say it was to "reduce taxes."

Children, frankly ignorant of everything involved except the price per name, filled petition forms from rooming house registers and with names of friends and kinfolk.

When the statute bans the paid circulators, punishes misrepresentation and limits lawmaking to adults then the initiative and referendum will be safe for Oklahoma.

Altus Democrat 1-18-28

* * *

Russell—the Useless Citizen

Campbell Russell at one time was voted by the citizens of Oklahoma City as the most useful man in that city. If a vote were taken again upon the proposition he would probably be either voted the most useless or at least the most aggravating of all citizens. The people are satisfied with the gross production tax of oil and are not clamoring for any change. When the price of oil is high we are getting our part, and when it is low we are taking our losses with a grin. Just now the price of oil is low and it is harder for the operator to pay his taxes than when oil is at the peak, just as it is harder for the farmer to pay taxes on 25 cent corn than it is on $1 corn.

Henryetta News 1-12-28

WHOSE CONSPIRACY?

On the sworn and uncontradicted evidence of the very persons who compiled it, Campbell Russell's Initiative Petition 101, the gross production tax increase bill, lies in the secretary of state's office, branded with the grossest fraud ever yet encountered in the lurid history of the initiative and referendum as it has been used and abused in Oklahoma.

Before the protesting oil and mineral producers had finished presenting their evidence of the petition's irregularities, Russell admitted its invalidity by filing Petition 102 for the same purpose and announced a fresh campaign for signatures.

At the same time he charged that the downfall of No. 101 was procured by perjury and conspiracy.

In view of the fact that the witnesses before the secretary of state were Russell's own circulators and that he did not attempt to refute any of their assertions on cross-examination, it seems pertinent to inquire:

"Whose conspiracy?"

Okemah Leader 1-16-28

A CHILD'S STORY

OKLAHOMA CITY, Jan. 19.—(Special)—Protest hearings against Campbell Russell's initiated $8,000,000 gross production tax increase petition came to a close before Secretary of State Graves Leeper with the naive and simple story of a child.

The witness, June Story, a 14-year-old Claremore girl answered an advertisement in a Tulsa paper, hoping she could earn spending money by selling toilet soap. She found the advertiser was Mrs. Lula Brown of Oklahoma City and the employment she offered, circulating Russell's oil tax petitions at 2½ cents per name.

Even with the alluring story that the petition would "reduce taxes," said the girl, it was "too hard" to get signatures.

"Hardly anybody would sign," June testified, "so I just put down names."

"Were they names of real people?" she was asked.

"Oh no, I just made them up. I was working with another girl; she'd write names on my page and I'd write names on hers."

Four petitions, bearing 80 names, among the sheets filed by Russell, were identified by the girl as fabricated in this manner. The petitions were signed by Mrs. Brown, with Mrs. Brown's oath that she had seen the persons whose names appeared, affix their signatures.

"We spent three weeks finding this girl, and there are dozens of other children who were used in the same manner in connection with this petition," said Judge S. W. Hayes, counsel for the oil and mineral producers who contend that the Russell petition is fraudulent.

Handwriting experts, at the closing session, brought the number of alleged deliberate forgeries to more than 7,000 or 14 per cent of the total number of signatures filed by Russell.

Charles Braham, attorney for Russell, asked until January 27 to decide whether to present evidence in an effort to show the petition valid.

Pawnee Courier-Dispatch 1-19-28

Mid-Continent Oil & Gas Association

The

PERFECTION

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for

Clean, unbroken cores

The Perfection Core Barrel is kept clean until it reaches bottom (regardless of bridges) by one of its exclusive patented features. Another, the *split liner*, makes it easy to remove the core . . . unbroken.

Our cutter head exchange plan (through any distributor) and the simple construction of the barrel from high grade chrome nickel steel, assure service you can depend on.

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OIL CITY IRON WORKS

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Distributors

Hercules Supply Co., Pyote, Tex.
Continental Supply Co., Duncan, Okla.
Continental Supply Co., Healdton, Okla.

EXPORTERS: Continental Well Supply Co., 74 Trinity Place, New York City

Quinby Oil Co.'s No. 2 Bennett, C NW 592, Blk. 105, G. C. & S. F. Sur., elev. 2,560 ft. — Cleaning out 1,465 ft.
Quinby Oil Co.'s No. 1 A. A. Gray, 660 ft. N and 1,320 ft. E SW cor. Sec. 593, Abst. 3,009, elev. 2,551 ft. — Shut down 700 ft. to deepen.
B. J. Spikes' No. 1 George Brown — Shut down 625 ft.
Transcontinental Oil Co.'s No. 1 Blackstone & Slaughter, Sec. 29, Blk. 129, St. L. Sur., elev. 3,539 ft. — 250 ft. sulphur water in black sand 1,150-80 ft.; small show oil 1,510 ft.; show gas 1,540 ft.; show oil 2,080 ft.; brown sand 3,560-70 ft.; 250,000 ft. gas at 3,565 ft.; drlg. 4,660 ft.
Transcontinental Oil Co.'s No. 1 University, NE NW SW Sec. 18, Blk. 18 — New location.
Vacuum Oil Co.'s No. 1 Elsinore Cattle Co. — Rigged up and drlg. water well.
World Oil Co.'s No. 1 Kloh, Sec. 47, Blk. 45, Twp. 8, T. P. R. R. Sur., elev. 2,810 ft. — Fishing 725 ft.
World Oil Co.'s No. 1 Serf, C NE Sec. 10, Blk. 130, T. & St. L. Sur., elev. 3,435 ft. — Shut down 725 ft.

Yates Pool, Pecos County

Pandem Oil and Gibson Oil Co.'s (was Allsman & Bell's) No. 6 River Bed — Waiting on machine.
Pandem Oil and Gibson Oil Co.'s (was Allsman & Bell's) No. 8 River Bed — Hole full of fluid, 35% water; shut down 1,095 ft.
Pandem Oil and Gibson Oil Co.'s (was Allsman & Bell's) No. 9 River Bed — Driving piling.
Pandem Oil and Gibson Oil Co.'s (was Allsman & Bell's) No. 10 River Bed — Cem. 8-in. 609 ft.; drlg. 850 ft.
Pandem Oil and Gibson Oil Co.'s (was Allsman & Bell's) No. 12 River Bed — Spudding.
Pandem Oil and Gibson Oil Co.'s (was Allsman & Bell's) No. 13 River Bed — Location.
Pandem Oil and Gibson Oil Co.'s No. 14 River Bed — Location.
Pandem Oil and Gibson Oil Co.'s No. 15 River Bed — Location.
California Co.'s No. 2 Yates, Sec. 34, Blk. 194 — Rig.
California Co.'s No. 9 Yates, Sec. 34, Blk. 194 — Top pay 1,211 ft.; total depth 1,268 ft.; flowed 300 bbls.
California Co.'s No. 10 Yates, Sec. 34 — 25,000,000 ft. gas and 75 bbls. oil per hr. 1,030 ft.; shut down.
California Co.'s No. 11 Yates, Lease 1 — Top pay 1,250 ft.; drlg. 1,280 ft.
California Co.'s No. 12 Yats, Lease 1 — Show gas 490-95 ft.; drlg. 1,125 ft.
California Co.'s No. 13 Yates, Lease 1 — Drlg. 700 ft.
California Co.'s No. 10 Smith, Lease 3 — Drlg. 1,315 ft.
California Co.'s No. 11 Smith, Lease 3 — Cleaning out 487 ft.
California Co.'s No. 12 Smith, Lease 3 — Cellar.
Day Bros. & McKnight's No. 1 Yates, NW cor. Sec. 58, Blk. 1 — Top salt 440 ft.; drlg. 1,150 ft.
Douglas Oil Co.'s No. 2 J. T. Sellman — Hole full salt water 795-860 ft.; 25 ft. sulphur water 1,614-15 ft.
Gulf Prod. Co.'s No. 8 Smith-A — Set 10-in. 522 ft. in lime.
Gulf Prod. Co.'s No. 9 Smith-A — Set 12-in. 533 ft. in lime.
Humble Oil Co.'s No. 4 M. A. Smith-B — Rig burned at 725 ft.; drlg. 1,380 ft.
McMan O. & G. Co.'s No. 2 J. H. Tippett — Set 6-in. 1,255 ft.
Madza and Savoy's No. 2 Smith, Sec. 24, Blk. 194 — Location.
McMan and Mariand's No. 16 Yates — Rig.
Mariand Oil Co.'s No. 11 Yates-A — Location.
Mariand Oil Co.'s No. 12 Yates-A — Location.
Mariand Oil Co.'s No. 13 Yates-A — Location.
Michaelson & Tabot's No. 1 River Bed — Spudded and shut down.
Mid-Kansas and Transcontinental's No. 14 Yates-A — Waiting on machine.
Mid-Kansas and Transcontinental's No. 15 Yates-A — Waiting on machine.
Mid-Kansas and Transcontinental's No. 16 Yates-A — Rig.
Mid-Kansas and Transcontinental's No. 10 Yates-B, Sec. 61, Blk. 1 — Drlg. 1,015 ft.
Mid-Kansas and Transcontinental's No. 11 Yates-B — Drlg. 1,230 ft.
Mid-Kansas and Transcontinental's No. 12 Yates-B — Rigging up.
Mid-Kansas and Transcontinental's No. 18 Yates-B — Show oil 1,095 ft.; flowed sulphur water 1,108 ft.; cem.; plugging back.
Mid-Kansas and Transcontinental's No. 19 Yates-B — Top pay 1,118 ft.; drlg. 1,190 ft. hole full oil.
Mid-Kansas and Transcontinental's No. 20 Yates-B — Top pay 1,155 ft.; flows 285 bbls.; drlg. 1,225 ft.
Mid-Kansas and Transcontinental's No. 21 Yates-B — Drlg. 967 ft.
Mid-Kansas and Transcontinental's No. 22 Yates-B — Rigging up.
Mid-Kansas and Transcontinental's No. 6 Yates-C — Rigging up.
Mid-Kansas and Transcontinental's No. 10 Yates-C — Location.
Mid-Kansas and Transcontinental's No. 1 Yates-F — Gas blew tools out of hole 587 ft.; run. 10-in. to 715 ft.
Mid-Kansas and Transcontinental's No. 2 M. A. Smith — First oil and gas show 1,095 ft.; top pay 1,110 ft.; shut down 1,245 ft.; flowing 97 bbls.
Mid-Kansas and Transcontinental's No. 7 Smith-Taylor — Set 6-in. 1,248 ft.
Mid-Kansas and Transcontinental's No. 8 Smith-Taylor — Top pay 1,222 ft.; total depth 1,275 ft.; flowing 95 bbls.
Mid-Kansas and Transcontinental's No. 9 Smith-Taylor — Waiting on mach ne.
Mid-Kansas and Transcontinental's No. 10 Smith-Taylor — Drlg. 700 ft.
Mid-Kansas and Transcontinental's No. 11 Smith-Taylor — Drlg. 100 ft.
Mid-Kansas and Transcontinental's No. 12 Smith-Taylor — Drlg. 550 ft.
Mid-Kansas and Transcontinental's No. 13 Smith-Taylor — Location.
Oregon Oil Corp.'s No. 1 Yates — Shut down 325 ft.
Phillips Pet. Co.'s No. 1 Mrs. M. A. Smith — Run 8-in. 776 ft.
Skelly Oil Co.'s No. 1 J. H. Tippett, Runnels County School Land A-2,169, Sec. 108, Blk. 194, G. C. & S. F. R. R. — New location.

PRESIDIO COUNTY

Headlock & Miller's No. 1 Tootle Est., Sec. 123, Blk. 3, D. & P. Sur., elev. 2,912 ft. — Salt water 2,610 ft.; total depth 3,403 ft.; shut down for orders.
Pinto Canyon Oil Co.'s No. 1 Fields, 1,760 ft. S and E NW cor. Sec. 74, Blk. 2, D. & P. Sur. — Location.

REAGAN COUNTY

Hagan & Emch's No. 1 E. W. Loftin — Rig.
Moody Oil Co.'s No. 1 R. A. Walters — Rig.
Roxana Pet. Co.'s No. 1 Sawyer Cattle Co., 3,000 ft. S of CNL Sec. 15, Blk. A, R. Casey Sur. — Moving in material.
Skelly Oil Co.'s No. 1 University, SW cor. Sec. 33, Blk. 8, University Land — Top salt 1,340 ft.; 1,800 ft. oil in hole 3,118 ft.
Texon O. & L. Co.'s No. 1-B University, Group 1 — Top pay 6,250 ft.; 2,000 ft. oil; drlg. 7,340 ft.
White et al's No. 1 Shofner & Sterling, NE cor. NW Sec. 10, 2 m. N of Big Lake — Top salt 1,275 ft.; hole full fresh water 2,155 ft.; shut down 2,175 ft. for 8-in.

REEVES COUNTY

Exploration Co.'s No. 1 A. A. Kinney, 1,500 ft. W of NE cor. Sec. 26, Blk. C-18, Public School Land, elev. 2,847 ft. — Show oil 1,105-10 ft.; drlg. 1,620 ft.; hole full sulphur water 1,600 ft.
Grisham-Hunter Corp.'s No. 1 Rathge & Connor, 600 ft. from N line and 5,760 ft. from W line of Sec. 26, Blk. 2, H. & G. N. — Drlg. 680 ft.
David R. Thompson's No. 1 A. A. Eddins — Drlg. 4,770 ft.
Vacuum Oil Co.'s No. 1 Grisham-Hunter — Set 15½-in. casing 533 ft.
World Oil Co.'s No. 1 Biggs, C SE Sec. 85, Blk. 112, Public School Land Sur., elev. 3,068 ft. — Fishing for bit 1,953 ft.
World Oil Co.'s No. 1 Duff, 1,500 ft. from S and 850 ft. from NE lines, R. S. Johnson Sur. No. 68, elev. 2,774 ft. — Top Delaware lime 4,185 ft.; hole full brackish salt water 4,362-4,500 ft.; plugged back to 4,237 ft.; shot 70 qts. 4,135-4,235 ft.; little oil in hole; shut down 4,500 ft.; moved tools to No. 1 Biggs.

RUNNELS COUNTY

Empire G. & F. Co.'s No. 1 C. C. Gray — Hole full fresh water 2,250-57 ft.; shut down 2,448 ft.
Gibson & Johnson's No. 1 Harris Est., Juliana Voske Cabrera Sur. — Location.
Gibson & Johnson's No. 1 H. P. Serratt, C SE NW Sec. 150, E. T. R. R. Sur. — Drlg. 1,200 ft.
Globe Oil Co.'s No. 1 J. H. Webb — Drlg. 900 ft.
Jones Oil Syndicate's No. 1 W. Hale — Underreaming 6-in. 1,710 ft.
Jones Oil Syndicate's No. 1 W. Hale (Runnells), NE cor. Sub. 29, Sec. 109, E. T. R. R. Co. sur. — New location.
McLean et al's No. 1 G. W. Clayton — Drlg. 760 ft.
Marland Oil Co.'s and E. L. Smith Oil Co.'s No. 1 A. C. Herring, C Sec. 121, E. T. R. R. Sur. (3,000-ft. test) — New location.
Marland Oil Co.'s No. 1 R. R. Russell, near CSL J. F. G. Sur. — New location.
Kennedy et al's No. 1 J. E. Tally — Cleaning out 1,720 ft.
May et al's No. 1 J. M. Schneider, John Wall Sur. — ⅛ bailer salt water 1,033 ft.; hole full water 1,100-20 ft.; underreaming 8-in. casing 1,325 ft.
Miles Oil Co.'s No. 1 Charles Ray, Sec. 21, T. & N. O. Sur. — Cellar and machine.
Miles Oil Co.'s No. 1 L. S. Lawhon, NE cor. Sec. 68 — Show gas 960-80 ft.; shut down for 6-in. 2,310 ft.
Royal Pet. Co.'s No. 1 A. C. Willingham — Shut down 865 ft.
Sillix Pet. Co.'s No. 1 Malone — Location.
Swensondale Oil Co.'s No. 1 E. A. Werner — Hole full water 2,000 ft.; shut down 2,080 ft.
Vacuum Oil Co.'s No. 2 R. M. McMillan — Drlg. 2,100 ft.
Watchorn O. & G. Co.'s No. 1 J. L. King — Hole full salt water 1,633-91 ft.; shut down 2,290 ft.

SCHLEICHER COUNTY

Beavers & Leath et al's No. 1 J. A. and W. T. Whitten, C NW Sec. 35, Blk. 11, T. O. Sur. — Shut down 400 ft.

SCURRY COUNTY

J. B. Mims et al's No. 1 J. J. Koonsman, Sec. 220, Blk. 2, H. & T. C. Sur. — Rig.

STERLING COUNTY

Orr et al's (to be taken over by Empire G. & F. Co.) No. 1 Neal Reed, CNL Sec. 15, Blk. 30, W. & N. W. Sur. — Shut down 1,390 ft. (cor.).

SUTTON COUNTY

National Potash Co.'s No. 1 J. N. Ross — Shut down 960 ft.

TAYLOR COUNTY

A. J. Brown et al's No. 1 Henslee, NE cor. Sec. 5, Blk. 4, S. P. R. R. Survey — Underreaming 6-in. 2,457 ft.
Dorning & Perrine's No. 1 J. A. Hammer, C N 100 acres, Sec. 23, Blk. 19, T. & P. Sur., elev. 1,904 ft. — Shut down 455 ft.
Gilbert Johnson and Day Bros.' No. 1 C. M. Brown, Sec. 1, Blk. 6, T. & P. Sur. — Fish. for bit 1,270 ft.
Owen & Sloan's No. 1 Lattimer, Sec. 14, Blk. 9, T. & P. Sur. — Shut down 2,825 ft.

TERRELL COUNTY

Big Bend Oil Co.'s No. 1 Bassett — Location.
Champlin Ref. Co.'s No. 1 Corder, C Sec. 110, Blk. 1, C. C. S. D. Sur. — Set 15½-in. at 625 ft.
Reep Rock Oil Co.'s No. 1 H. C. Nolke, Sec. 4, Blk. A-2, T. C. R. R. Sur. — Fishing 440 ft.
Humble Oil Co.'s No. 1 University, Sec. 15, Blk. 34 — Shut down for fish. tools 900 ft.
Milham Exploration Co.'s No. 1 Bassett, Sec. 77, Blk. Y, W. H. Robertson Sur. — Run. 8-in. 1,788 ft.
Miller Bros.' No. 1 Allison & Burke, CNW Sec. 10, Blk. 176, Texas-Mex. R. R. Sur. — Building rig.

TERRY COUNTY

Kingsland O. & P. Co.'s No. 1 Brownfield, C NW SW SW Sec. 7, Blk. 1-A, E. L. R. R. Sur. — Slight show gas 2,230 ft.; run. 6-in. 3,207 ft.; will deepen.

TOM GREEN COUNTY

George Amery's No. 1 Wilkey, C SW Sec. 3, B. A. L. Sur. — Location.
Collins et al's No. 1 Jones, CSL Sec. 646, Shaffer Sur. — Rig.
Cox et al's No. 1 Llano — Total depth 470 ft.; shut down.
Fitzgerald & Taliaferro's No. 1 Bennett — Underreaming 8-in. 1,900 ft.
Mariand Oil Co.'s No. 1 J. W. Johnson, C SE Sec. 6, R. B. Sanderson Sur. — Hole full water 2,020-45 ft.; shut down 3,500 ft.
Mariand Oil Co.'s No. 1 J. W. Johnson-A — Fishing 3,130 ft.
Tulsa Oil Co.'s No. 1 Adams, C SW Sec. 163, Blk. 11, S. P. R. R. Sur. — Shut down 1,020 ft.
Haubelt et al's No. 1 Johnson — Location.
Haubelt et al's No. 2 Johnson — Shut down 1,201 ft.
World Oil Co.'s No. 1 Mrs. F. T. March — Location.
World Oil Co.'s No. 2 Pulliam, Sec. 25, Blk. 4, H. & T. C. Sur., elev. 1,823 ft. — Repairing machine 440 ft.

UPTON COUNTY

Mark Curtis et al's (was Hultz et al's) No. 2 Giddings, 5,336 ft. S and 6,678 ft. E of NW cor. Throckmorton C. School Land, League 1, elev. 2,757 ft. — Underreaming 10-in. casing 950 ft.
Southern C. O. P. Co.'s No. 1 C. W. Hobbs — Flowed sulphur water 2,340-80 ft. Shut down 2,955 ft.
The Texas Company and Cordova Union's No. 1 Union Land, Sec. 23, Blk. 35, H. & T. C. — Top pay 2,098 ft.; swabbed 60 bbls. in 36 hrs. at 2,271 ft., 2 per cent water; 2,200 ft. sulphur water 2,390-2,405 ft.; shut down 3,125 ft.; to plug back.
Wise & Jackson's No. 1 J. H. Porter, SW cor. SW SW Sec. 184, Blk. E, elev. 2,592 ft. — Top pay 3,419 ft.; total depth 3,517 ft., gray lime; shut down.

VAL VERDE COUNTY

A. Blume et al's No. 1 Moore Est., Sec. 183, J. Mitchell Sur., elev. 953 ft. — Shut down 3,000 ft.
Curso Williams' No. 1 Holman, NE NE Sec. 5, Blk. N, G. H. & S. A. Sur. — Shut down 2,940 ft.
East Del Rio Oil Co.'s No. 1 Russell, SE cor. Sec. 183, Del Rio Town Sur., elev. 941 ft. — Total depth 3,190 ft.; shut down.
Magnolia Pet. Co.'s No. 1 Whitehead, Sec. 51, D. G. C. & S. F. Sur., elev. 1,770 ft. — Drlg. 5,992 ft.
Independent Operator's No. 1 Whitehead, SE SE Sec. 30, Blk. 4, I. & G. N. Sur., elev. 1,175 ft. — Shut down 3,900 ft.
O. O. Owens' No. 1 Mills, Sec. 128, Blk. 1, I. & G. N. Sur., elev. 2,130 ft. — Gas sand 2,491-2,520 ft.; tested 125,750 ft. gas; reset 8-in. 2,511 ft.; shut down 4,210 ft.
W. B. Thraves et al's No. 1 W. E. Wilson — Shut down 905 ft.

WARD COUNTY

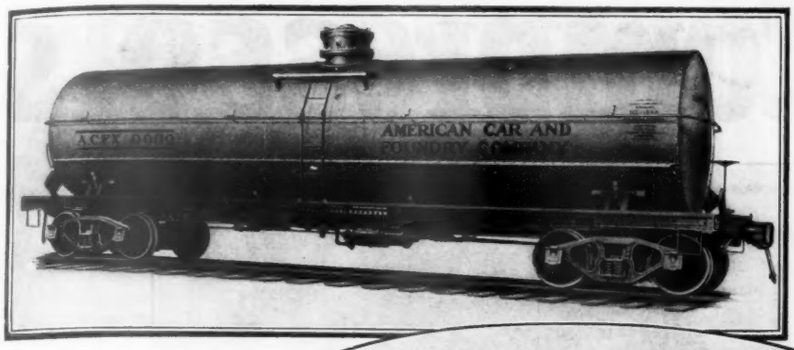
Selby Oil Co. et al's No. 1 A. G. Dooley et al, Sec. 85, Blk. A, G. M. M. & A. Sur. — Shut down 500 ft.

WINKLER COUNTY

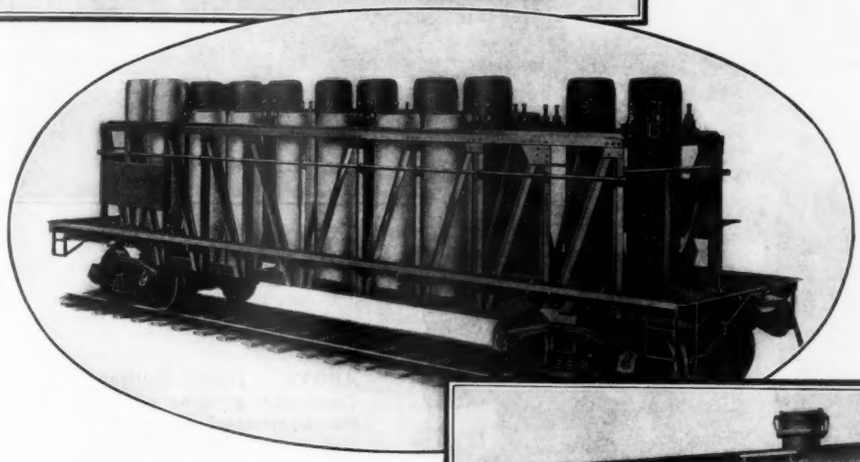
Amerada Pet. Corp.'s No. 1 J. B. Walton, SW cor. NW Sec. 48, Blk. 26, elev. 2,833 ft. — Rerun 8-in.; water shut off; making 15,000,000 ft. gas and slight spray oil; drlg. 2,415 ft.; no change.
Atlantic O. P. Co.'s No. 1 Ida Hendricks-B, SE cor. W half NE Sec. 44, Blk. 26 — Show gas 2,770 ft.; top pay 2,824 ft.; cleaning out 2,936 ft.; production 350 bbls.
Atlantic O. P. Co.'s No. 2 Grisham-Hunter-A, Sec. 34, Blk. B-5 — Shot 480 qts. 2,850-2,999 ft.; to shoot again; cleaning out.
Atlantic O. P. Co.'s No. 3 Grisham-Hunter-A, Sec. 34, Blk. B-5 — Topped salt 1,315 ft.; drlg. 2,614 ft.
Atlantic O. P. Co.'s No. 4 Grisham-Hunter-A, Sec. 34, Blk. B-5 — Top salt 1,470 ft.; top lime 2,472 ft.; drlg. 2,800 ft.
Atlantic O. P. Co.'s No. 1 Grisham-Hunter-C (was Lemar) SW cor. Sec. 40, Blk. B-5 — Total depth 2,978 ft.; gas pressure split connections; est. 75,000,000 ft. gas; running wild; trying to kill gas.
Atlantic O. P. Co.'s No. 1 Grisham-Hunter-E, SW cor. N half NE Sec. 41, Blk. B-5 — Show oil 2,697 ft.; total depth 2,993 ft.; initial prod. 5,342 bbls. open.
Atlantic O. P. and Collett's No. 1 Ida Hendricks-F, NE cor. W half NW Sec. 40, Blk. 26 — Show gas 2,522 ft.; set 6-in. casing 2,685 ft.; total depth 2,685 ft.;1-5 bbls. head and 5,000,000 ft. gas.
Atlantic O. P. and Collett's No. 2 Ida Hendricks-F — Building derrick.
Atlantic O. P. Co.'s No. 3 Grisham-Hunter-E, NW cor. N half NE Sec. 41, Blk. B-5 — New location.
Atlantic O. P. Co.'s No. 5 Grisham-Hunter, NW cor. SE SW Sec. 34, Blk. B-5 — New location.
Atlantic O. P. Co.'s No. 6 Grisham-Hunter, NW SE SW Sec. 34, Blk. B-5 — New location.
Atlantic O. P. Co.'s No. 2 Grisham-Hunter-E, NW cor. Sec. 41, Blk. B-5 — New location.
Atlantic O. P. Co.'s No. 4 Grisham-Hunter-E, SE NE NE Sec. 41, Blk. B-5 — New location.

Atlantic O. P. Co.'s and Collett's No. 3 Hendricks-F, NW NE NW Sec. 40, Blk. 46 ..... New location.
V. T. Bolin et al's No. 1 Brown ..... Rigging up rotary.
Cranfill Bros. and California Co.'s No. 1 M. J. Bashara, at cor. Secs. 10, 11, 22 and 23, School Blk. 77 ..... Total depth 3,503 ft. (s.l.m.); shut down for orders.
Cranfill & Reynolds' No. 2 Hendricks-C, SW SE SW Sec. 33, Blk. 76 ..... New location.
Cranfill & Reynolds' No. 1 Hendricks-C ..... Cem. 8-in. 2,408 ft.; drlg. 2,435 ft.; top lime 2,408 ft.
Eastland Oil Co. and Arnold's No. 1, Sec. 35, Blk. B-5 ... Show oil 2,675 ft.; top pay 2,710 ft.; drlg. by tools 2,755 ft.; flowing 60 bbls.
Gulf Prod. Co.'s No. 2T. G. Hendricks, NE NW NW Sec. 34, Blk. B-5 ..... Rig standing.
Gulf Prod. Co.'s No. 8 T. G. Hendricks, Sec. 34, Blk. B-5.. Show oil and gas in lime 2,483 ft.; running casing; top lime 2,480 ft.
Gulf Prod. Co.'s No. 9 T. G. Hendricks, Sec. 34, Blk. B-5.. Top salt 1,837 ft.; drlg. 2,308 ft.
Gulf Prod. Co.'s No. 10 T. G. Hendricks, SW cor. NE Sec. 45, Blk. 26 ..... Top salt 1,973 ft.; fishing 8¼-in. casing 2,815 ft.
Gulf Prod. Co.'s No. 11 T. G. Hendricks, Sec. 34, Blk. B-5.. Rigging.
Gulf Prod. Co.'s No. 12 T. G. Hendricks, Sec. 34, Blk. B-5.. Rig.
Gulf Prod. Co.'s No. 13 T. G. Hendricks, Sec. 40, Blk. B-5.. Drlg. sand 140 ft.
Humble O. & R. Co.'s No. 1 Hendricks-C, SE cor. Sec. 32, Blk. 26 ..... New location.
Humble O. & R. Co.'s No. 1 J. B. Walton-B, SE cor. N half Sec. 47, Blk. 26 ..... New location.
Humble O. & R. Co.'s No. 1 J. B. Walton-A, NW cor. Sec. 48, Blk. 26 ..... New location.
Humble O. & R. Co.'s No. 2-A Sec. 34, Blk. B-5 ..... Top salt 1,340 ft.; top lime 2,228 ft.; shut down 2,500 ft.
Humble O. & R. Co.'s No. 3 Hendricks, Sec. 34, Blk. B-5.. 5,000,000 ft. gas from 2,195 ft.; spraying 100 bbls. 2,896 ft.; killing well to deepen; total depth 2,898 ft.; shut down.
Humble O. & R. Co.'s No. 5 Hendricks, SW cor. NE Sec. 34, Blk. B-5 ..... Top lime 2,398 ft.; big gas 2,800 ft.; total depth 2,860 ft.; rigging up blowout preventer; drlg. 2,940 ft.; 20,00,000 ft. gas; flowing 284 bbls. heads.
Humble O. & R. Co.'s No. 6 Hendricks ..... Drlg. 830 ft.
Humble O. & R. Co.'s No. 7 Hendricks ..... Rigging up rotary.
Humble O. & R. Co.'s No. 8 Hendricks ..... Rigging up rotary.
Humble O. & R. Co.'s No. 9 Grisham-Hunter, NE NE Sec. 34, Blk. B-5 ..... New location.
Humble O. & R. Co.'s No. 10, Grisham-Hunter, NE SW NW Sec. 41, Blk. B-5 ..... New location.
Humble O. & G. Co.'s No. 2 Ida Hendricks-B, Sec. 29 .... Drlg. 2,973 ft.; top lime 2,594 ft.; flowed 288 bbls. in 11 hrs.
Humble O. & R. Co.'s No. 4 Ida Hendricks-B, SE N half SE Sec. 29, Blk. B-5 ..... New location.
Independent O. & G. Co.'s No. 3 Grisham-Hunter, Sec. 34.. Material.
Independent O. & G. Co.'s No. 4 Grisham-Hunter ..... Rig.
Independent O. & G. Co.'s No. 5 Grisham-Hunter ..... Standardizing 2,495 ft.; shut down.
Independent O. & G. Co.'s No. 6 Grisham-Hunter ..... Drlg. 2,748 ft.
Independent O. & G. Co.'s No. 7 Grisham-Hunter ..... Gas 2,597 ft.; top pay 2,890 ft.; total depth 2,927 ft.; initial prod. 1,200 bbls. per day.
Independent O. & G. Co.'s No. 8 Grisham-Hunter ..... 8-in. casing 2,597 ft.; top lime 2,591 ft.
Independent O. & G. Co.'s No. 1 Vardeman-B, SE cor. E. half NW Sec. 41, Blk. B-5 ..... Top salt 1,775 ft.; top pay 2,575 ft.; shut down 2,743 ft.; flowed 3,469 bbls.; tools in hole.
Independent O. & G. Co.'s No. 2 Vardeman-B ..... Top salt 1,800 ft.; drlg. 2,322 ft.; 8-in. casing set.
Independent O. & G. Co.'s No. 3 Vardeman-B ..... 8-in. casing 2,328 ft.
Independent O. & G. Co.'s No. 4 Vardeman-B ..... Drlg. 285 ft.
Independent O. & G. Co.'s No. 5 Vardeman-B, NE cor. NW Sec. 41, Blk. B-5 ..... New location.
Independent O. & G. Co.'s No. 1 E. W. Cowden ..... Rigging up.
Liner Drlg. Co.'s No. 1 Seth-Campbell, NE cor. Sec. 2, Blk. B-5 ..... Shut down 450 ft.
Landreth Prod. Corp.'s No. 1 Hendricks-A, SE cor. SW Sec. 29, Blk. B-5 ..... Total depth 3,013 ft.; building rig to deepen.
Landreth and Roxana's No. 2 Ida Hendricks-A, Sec. 29, Blk. B-5 ..... Partly rigged and shut down.
Landreth and Roxana's No. 3 Ida Hendricks-A, Sec. 29, Blk. B-5 ..... Drlg. 2,860 ft.
Marland Oil Co.'s No. 1 T. G. Hendricks, SE cor. W half Sec.- 33, Blk. 26 ..... New location.
Marland Oil Co.'s No. 2 T. G. Hendricks, NE SE SE Sec. 33, Blk. 26 ..... New location.
Marland Oil Co.'s No. 3 T. G. Hendricks, NE SE SW Sec. 33, Blk. 26 ..... New location.
Magnolia Pet. Co.'s (was G. M. Church et al's) No. 2 Ida Hendricks ..... Show oil 2,750 ft.; top pay 2,865 ft.; total depth 2,961 ft.; ran 5-in. with packer to 2,955 ft.; failed to shut off water; plugging back.
Magnolia Pet. Co.'s No. 3 Ida Hendricks ..... Drlg. 2,750 ft.
Magnolia Pet. Co.'s No. 5 Ida Hendricks ..... Drlg. 2,750 ft.
Magnolia Pet. Co.'s No. 6 Ida Hendricks, Sec. 29, Blk. B-5 ..... Drlg. 2,475 ft.
Magnolia Pet. Co.'s No. 7 Ida Hendricks ..... Drlg. 661 ft.
Magnolia Pet. Co.'s No. 8 Ida Hendricks ..... Location.
Murchison Oil Co. et al's No. 1 Grisham-Hunter-B, NE cor. SW SW Sec. 35, Blk. B-5 ..... Standing 2,427 ft.
Murchison Oil Co. et al's No. 2 Grisham-Hunter-B ..... Location.
Murchison Oil Co. et al's (was Marland Oil Co.'s) No. 4 Grisham-Hunter-B ..... Drlg. 2,868 ft.
Mining & Engineering Co.'s No. 1 T. G. Hendricks, Sec. 10, Blk. B-12 ..... Spudded 30 ft. and shut down.
Murchison Oil Co. and Cranfill Bros.' No. 2 Grisham-Hunter-A ..... Location.
Murchison Oil Co. and Cranfill Bros.' No. 4 Grisham-Hunter ..... Location.
The Texas Company's (was Pure Oil Co.'s) No. 2 Hendricks, elev. 2,827 ft. ..... Top salt 1,513 ft.; top lime 2,390 ft.; spraying oil with 15,000,000 ft. gas 2,657-2,825 ft; flowed 35 bbls. first hr. from 2,657-2,830 ft.; top big pay 2,875 ft.; shut down 2,889 ft.; average 550 bbls.
The Texas Company's (was Pure Oil Co.'s) No. 3 Hendricks, NE cor. SW Sec. 41, Blk. B-5 ..... Top pay 2,759 ft.; est. 1,800 bbls. oil and 50,000,000 ft. gas; tools blew out and broke control head; trying to change connections; saved 2,245 bbls. from cellar Jan. 25.
The Texas Company's No. 4 Hendricks ..... Derrick.
The Texas Company's No. 5 Hendricks ..... Drlg. 352 ft.
The Texas Company's (was Pure Oil Co.'s) No. 1 Hendricks-B, NE cor. SE Sec. 34, Blk. B-5 ..... Show gas 2,350-60 ft.; show oil 2,330 ft.; 15,000,000 ft. gas at 2,490 ft.; more gas 2,564 ft.; 40,000,000 ft. gas at 2,720 ft.; rigging cable tools 2,731 ft.
The Texas Company's (was Pure Oil Co.'s) No. 2 Hendricks-B ..... Top lime 2,387 ft.; top pay 2,805 ft.; flowing small heads; shut down for orders 2,866 ft.
The Texas Company's (was Pure Oil Co.'s) No. 3 Hendricks-B ..... Cem. 8-in. 2,438 ft.; 6,000,000 ft. gas 2,600 ft.; shut down for orders 2,860 ft.
The Texas Company's (was Pure Oil Co.'s) No. 4 Hendricks-B ..... Stand. cem. 2,405 ft.
The Texas Company's No. 5 Hendricks-B, SE SW SE Sec. 34, Blk. B-5 ..... 8-in. casing 2,422 ft.; total depth 2,431 ft.; top lime 2,420 ft.
The Texas Company's (was Pure Oil Co.'s) No. 6 Hendricks-B ..... Top salt 1,315 ft.; cem. 8-in. 2,390 ft.
The Texas Company's No. 1 Grisham-Hunter-C ..... Drlg. 1,173 ft.

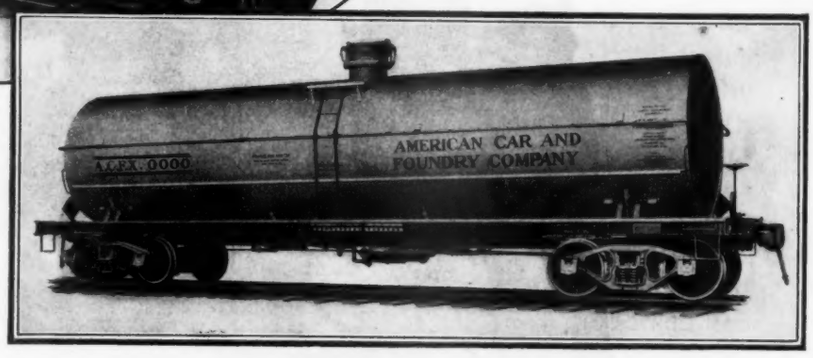
Republic Prod. Co.'s No. 1-A Grisham-Hunter-B, SW cor. E half SE Sec. 41, Blk. B-5 ..... Fishing 2,234 ft.
Republic Prod. Co.'s No. 2 Grisham-Hunter-B ..... Drlg. 2,840 ft.
Republic Prod. Co.'s No. 3 Grisham-Hunter-B, NE cor. SE Sec. 41, Blk. B-5 ..... New location.
Republic Prod. Co.'s No. 2 Hendricks-A, NE E half SW Sec. 45, Blk. 26 ..... Drlg. 2,100 ft.
Roxana Pet. Corp.'s No. 1 Grisham-Hunter-A, SW cor. E half NW Sec. 45, School Blk. 26 ..... Top lime 2,428 ft.; total depth 2,828 ft.; flowed aver. 1,500 bbls. past week, pinched.
Roxana Pet. Corp.'s No. 2 Grisham-Hunter-A, SE cor. E half NW Sec. 45, Blk. 26 ..... Set 8-in. casing 2,355 ft.
Roxana Pet. Corp.'s No. 2 Grisham-Hunter-B ..... Cem. 8-in. 2,648 ft.; drlg. 2,740 ft.
Roxana Pet. Corp.'s No. 3 Grisham-Hunter-B ..... Topped lime 2,602 ft.
Roxana Pet. Corp.'s No. 2 Grisham-Hunter-C, SE cor. N half NW Sec. 29, Blk. B-5 ..... Top salt 1,405 ft. showed oil 2,880-83 ft., 2,910-14 ft. and 2,919-36 ft.; top pay 2,948 ft.; total depth 2,989 ft.; flowed 320 bbls. per hr. open, 33 per cent water; pinched to 3,540 bbls., 1 per cent water; plugged back to 2,943 ft.; no production.
Roxana Pet. Corp.'s No. 3 Grisham-Hunter-C ..... Top salt 1,571 ft.; top lime 2,527 ft.; total depth 2,912 ft; initial prod. 2,101 bbls.
Roxana Pet. Corp.'s No. 4 Grisham-Hunter-C ..... Drlg. 2,870 ft.
Roxana Pet. Corp.'s No. 5 Grisham-Hunter-C ..... Top lime 2,588 ft.; drlg. 2,850 ft.
Roxana Pet. Corp.'s No. 2 Grisham-Hunter-D ..... Top salt 1,340 ft.; run. 8-in. 2,256 ft.; stand. cem.; top lime 2,265 ft.; drlg. 2,415 ft.
Roxana Pet. Corp.'s No. 3 Grisham-Hunter-D ..... Drlg. 323 ft.
Roxana Pet. Corp.'s No. 1 Grisham-Hunter-E ..... Drlg. 327 ft.
Sheldon & Burden's No. 1 Ida Hendricks, SW cor. SE Sec. 28, Blk. B-5 (10-a. tract) ..... Top salt 1,260 ft.; top lime 2,609 ft.; top pay 2,719 ft.; small increase 2,914 ft. and 2,973 ft.; drlg. 3,035 ft.
Southern C. O. P. Co.'s No. 2 Ida Hendricks T-88-B ..... Total depth 2,659 ft.; cem. 6-in. in lime; stand. cem.
Southern C. O. P. Co.'s No. 2 T-89 Grisham-Hunter-A, Sec. 35, Blk. B-5 ..... Standardizing 2,301 ft.; shut down.
Southern C. O. P. Co.'s No. 3 T-89-A Grisham-Hunter-A.. Shut down 2,352 ft.
Southern C. O. P. Co.'s No. 4 T-89 Grisham-Hunter-A ... Rig.
Southern C. O. P. Co.'s No. 4 T-89-A Grisham-Hunter-A.. Location; rotary moved away.
Texon O. & L. Co.'s No. 2 Grisham-Hunter-A ..... 5,000,000 ft. gas 2,260-2,500 ft.; 15,000,000 ft. gas 2,646-56 ft.; total depth 2,725 ft.; rig was wrecked when gas blew tools out of hole; est. 200,000,000 ft.; repairing rig; shut down 2,727 ft.
Texon O. & L. Co.'s No. 3 Grisham-Hunter-A, NW cor. W half SE Sec. 41, Blk. B-5 ..... Drlg. 2,539 ft.
Texon O. & L. Co.'s No. 1 Grisham-Hunter-B, NW cor. W half SW Sec. 45, School Blk. 26 ..... 1½ bailers salt water hr. at 2,725 ft.; shut down 2,800 ft.
Texon O. & L. Co.'s No. 2 Grisham-Hunter-B, NE W half SW Sec. 45, Blk. 26 ..... Shut down for storage 2,815 ft.; top pay 2,810 ft.; aver 305 bbls.; drlg. 2,842 ft.
White Eagle O. & R. Co.'s (was Gibson & Johnson's) No. 1 P. A. Lock, 1,320 ft. W. of NE cor. Sec. 30, Blk. 74, NW of discovery well, elev. 2,830 ft. ..... Total depth 3,260 ft.; shut down; pulled 5 3-16-in. casing to run 6⅝-in. casing by tools.
Southern C. O. P. Co.'s No. 1 Ida Hendricks, 3-T-67-A, C SW NW NE Sec. 4, Blk. B-12, elev. 2,784 ft. ..... Top lime 2,638 ft.; slight show oil 3,000-08 ft.; filled up 1,500 ft. sulphur water at 3,065-72 ft.; plugged back to 3,050 ft.; water now shut off; shut down waiting orders.
Southern C. O. P. Co.'s No. 2 Ida Hendricks 3-T-67-A ... Building rig 2,646 ft.
Southern C. O. P. Co.'s No. 2 T-67 Ida Hendricks-F ..... Top salt 1,715 ft.; cem. 6-in. 2,207 ft.; fishing 2,250 ft.
Southern C. O. P. Co.'s No. 3 T-67 Ida Hendricks-F ..... Top salt 1,702 ft.; top lime 2,688 ft.; cem. 2,694 ft.; fishing 2,707 ft.
Southern C. O. P. Co.'s No. 4 T-67 Ida Hendricks-F ..... Top salt 1,800 ft.; top lime 2,700 ft.; shut down 2,701 ft.
Southern C. O. P. Co.'s No. 5 T-67 Ida Hendricks-C .... Cem. 6-in. 2,643 ft.; shut down.
Southern C. O. P. Co.'s No. 2 T-67 Hendricks-B ..... Drlg. 1,509 ft.
Southern C. O. P. Co.'s No. 1 T-67 Hendricks-3-B ..... Drlg. 861 ft.
Southern C. O. P. Co.'s No. 2 T. G. Hendricks, T-67-3B, NE SW SW Sec. 33, Blk. 26 ..... New location.
Southern C. O. P. Co.'s No. 1 Hendricks 3-T-68-A, SW cor. W half NW Sec. 35, Blk. B-5 ..... Top salt 1,365 ft.; top lime 2,303 ft.; top pay 2,440 ft.; shut down 2,740 ft.; no production; tools bridged hole; est. 90,000,000 ft. gas; temp. completed for fuel.
Southern C. O. P. Co.'s No. 2 Hendricks 3-T-68-A ..... Drlg. 2,610 ft.; show gas 2,470 ft.; drlg. 2,690 ft.
Southern C. O. P. Co.'s No. 3 Hendricks 3-T-68-A ..... First gas 2,400 ft.; 8,000,000 ft. gas 2,420 ft.; shut down 2,420 ft.
Southern C. O. P. Co.'s No. 1 T-88 Ida Hendricks-C, NW cor. Sec. 28, Blk. B-5 ..... 6,000,000 ft. gas 2,665 ft.; total depth 2,880 ft.; fish. bit.; drlg. by tools.
Southern C. O. P. Co.'s No. 4 Ida Hendricks, T-88-C .... Cem. 6-in. 2,586 ft.; drlg. 2,737 ft.
Southern C. O. P. Co.'s No. 5 Ida Hendricks, T-88-C .... Gas at 2,605 ft.; show oil 2,735 ft.; drlg. 2,770 ft.; show oil 2,845 ft.
Southern C. O. P. Co.'s No. 6 Ida Hendricks, T-88-C .... Gas at 2,695 ft.; show oil 2,824 ft.; drlg. 2,995 ft.; hole full oil 2,999 ft.
Southern C. O. P. Co.'s No. 7 Ida Hendricks, T-88-C .... Show gas 2,600 ft.; top pay 2,815 ft.; drlg. 2,985 ft.; spraying oil; total depth 3,051 ft.; initial prod. 350 bbls. in 15 hrs.
Turman & Maxwell's No. 1 Ida Hendricks ..... Top pay 2,879 ft.; total depth 3,045 ft.; flowing aver. 1,577 bbls. completed.
Turman & Maxwell's No. 2 Ida Hendricks ..... 10,000,000 ft. gas 2,865 ft.; total depth 2,915 ft.; aver. 823 bbls. past week; shut down 2,915 ft.
Turman & Maxwell's No. 3 Ida Hendricks, E half NE Sec. 29, Blk. B-5 ..... Top pay 2,930 ft.; total depth 2,936 ft.; prod. 1,250 bbls., 35 per cent b.s. and water.
Turman & Maxwell's No. 4 Ida Hendricks ..... Cem. 6-in. 2,560 ft.; standing.
Turman & Maxwell's No. 5 Hendricks, SE cor. E half NE Sec. 29, Blk. B-5 ..... Drlg. 1,900 ft.
Turman & Maxwell's No. 6 Hendricks, NW cor. E half NE Sec. 29, Blk. B-5 ..... Drlg. 2,445 ft.; top salt 1,217 ft.
Turman & Maxwell's No. 7 Hendricks ..... Topped pay 2,720 ft.; flowing 15 bbls. hr.
Turman & Maxwell's No. 8 Hendricks ..... Top salt 1,260 ft.; cem. 6-in. 2,355 ft. and shut down.
Southern C. O. P. Co.'s No. 1 Ida Hendricks, T-88-G, SW SE Sec. 28, Blk. B-5 ..... Drlg. 1,763 ft.
Southern C. O. P. Co.'s No. 1 T-88 Hendricks-H ..... Top salt 1,290 ft.; top lime 2,693 ft.; shut down 2,717 ft.
Southern C. O. P. Co.'s No. 2 T-88 Hendricks-H ..... Drlg. 2,245 ft.; top salt 1,232 ft.
Southern C. O. P. Co.'s No. 2 T-88 Hendricks-A ..... Drlg. 1,075 ft.
Southern C. O. P. Co.'s No. 1 Ida Hendricks, T-88-I, SE cor. E half NE Sec. 30, Blk. B-5 ..... Cem. 6-in. 2,661 ft.; drlg. 2,715 ft.
Southern C. O. P. Co.'s No. 1 E. G. Hutchings, T-90, NE cor. E half SE Sec. 47, Blk. 26, elev. 2,835 ft. ..... Top salt 935 ft.; top lime 2,340 ft.; drlg. plug.
Gibson-Johnson & Kesler-Logan's No. 1 Daugherty, SW cor. NE SW Sec. 3, Blk. 74, School Land ..... Rigging up rotary.
Llano Oil Co.'s No. 1 F. B. Armstrong, at common cor. Secs. 12, 13, 18 and 19, Blk. B-5, School Land ..... Location.
Roxana Pet. Corp. and Llano Oil Co.'s No. 2 W. F. Scarborough, SW cor. NE Sec. 1, Blk. C-22, School Land ..... Drlg. 550 ft.; top sand 1,130 ft.; drlg. 1,295 ft.



Tank car (top picture) for liquefied petroleum, ethyl chloride, and other gases which are permissible in tanks complying with I. C. C. Shipping Container Specification No. 104-A. Equipped with special dome arrangement, incorporating a safety valve, means for loading and unloading, gauging, sampling, and ascertaining temperature, all protected by a heavy cast-steel housing and operated without opening the dome cover.



Multi-unit car (center picture) for carrying thirty 1,000-pound capacity Rowland Containers (I. C. C. No. 27) for propane, butane, or anhydrous ammonia, or thirty 1-ton containers for liquid chlorine or sulphur dioxide. Another type of multi-unit car can be furnished, carrying fifteen 1-ton containers, horizontally, for liquid chlorine or sulphur dioxide.



Tank car (bottom picture) for liquefied petroleum gases, conforming to latest requirements of the A. R. A. and I. C. C. Shipping Container Specification No. 105. This particular car has a 20-ton tank (water capacity, 11,000 gallons), tank sheets 1¼" thick, forge welded, and is equipped with a safety valve set at 200 pounds per square inch, loading and unloading pipes, angle valves, etc.

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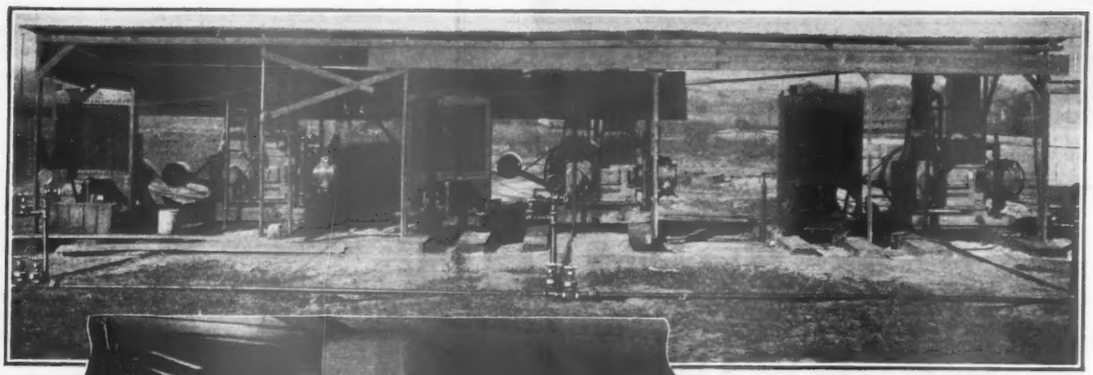

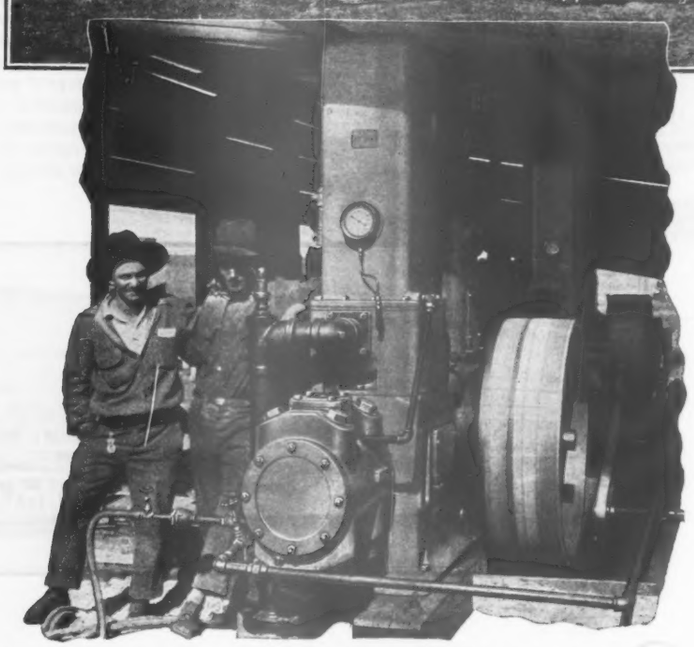

ABOVE: Three Sullivan Compounds pumping oil for the Continental Oil Company at Earlsboro, Okla.

AT LEFT: Two more Angle Compounds at Casar Lease, Little Rock, Ark.

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CONTINENTAL

WILDCATTERS ANXIOUS TO START TO WORK

(Continued from Page 177)

Texas Production Co. has a wildcat under way on the Sweetwater Dome. In the northeastern part of the state the Midwest interests are trying to develop production in the Sundance on the Ashley Creek Dome, where gas was found in the Morrison, and a Tertiary test will be made on the Duchesne structure in the county of the same name by the same interests. Several small companies are drilling in the Vernal area and the Diamond Oil Co. will drill in Utah County. Two or three tests in Washington County, one of which will be a deep well, are scheduled for the year.

Southwest Texas

Wildcatting in Southwest Texas during the year 1928 will be more scattered than ever before. There are little spots all over Southwest Texas where wildcatters have found enough indications of oil and gas that test work will continue and during all of 1927 there was no field of importance opened up or any circumstance that would tend to cencentrate the attention of oil men on any one territory. Two years ago reacting to the Luling Field there was at one time 65 wildcat wells drilling along the Balcones Fault northeast of San Antonio and between San Antonio and the Rockdale-Minerva Field. The year 1928 enters the pages of history with no such influence.

If anything there will be more attention to the coast country around Corpus Christi for a distance of 50 miles in every direction which takes in the Kingsville Field on the south, the Refugio Field on the north and the Cartwright gas field inland and the White Point Field in the center. However, during the last 18 months of depressed conditions various operators in the Laredo territory have been finding new gas spots and with some indications of oil. These spots have not been developed since more gas was not needed. If things improve there will be strenuous efforts to develop them and find oil.

There are visible indications in the shape of several wildcats between San Antonio and the Rockdale-Minerva Field that a slight revival of wildcatting is on in that territory and one learns of other tests that are planned and will doubtless be carried through. The Dale Field, which may be on an extension of the Luling Fault but producing in a different formation, while it has been a little affair with 14 producers and 14 dry holes and a daily average now of about 500 bbls., has already encouraged some drilling on that line and Dickinson & Smith got a smell of oil in their No. 1 Callahan in the Edwards lime between the Dale and Luling Fields. There are 14 wildcat tests drilling in this territory now.

Out in Maverick County late in 1926 and early in 1927, Rycade Oil Co.'s No. 1 Chittim developed some gas and oil. Fishing jobs hindered the work. By April 20 it had nearly 10,000,000 feet of gas, deepening developed it to 18,000,000 and April 27 it had 28,900,000 feet and sprayed about 75 to 100 bbls. of oil at 5,588 feet. The lower part of the hole was lost and it started sidetracking at 4,115 feet and is now shut down waiting for water. It is too much gas and oil to leave the territory alone even though the depth is over 1 mile. Rycade has about 200,000 acres of leases though and hence the matter is of no interest to outsiders except that some believe there is a line of folding north and south that can be followed off the Rycade leases and that makes wildcatting over considerable extent of territory warranted.

A fourth locality that will get attention more than others is that up through Karnes, DeWitt, Gonzales, Lava and Fayette. Major company men didn't use to think much of this territory. It has been growing in favor with them to some extent and there are a dozen or so tests in these counties now and more announced.

Oklahoma's Prospects

The future for wildcat plays in Oklahoma for 1928 seems rather questionable at this time. The depressed condition of the petroleum industry has had the effect of closing down all lease purchases during the past year, and just when an extensive leasing campaign will again be inaugurated in Oklahoma is problematical, and largely depends upon the general situation.

Two regions have been prominently mentioned for 1928, and both are part of a geological theory. The most discussed region is situated on the north flanks of the Ouachita Mountains, and extends through Garvin, McClain, Grady, Caddo, a part of Canadian and into Blaine County. There are now numerous blocks of wildcat acreage held in that region, and the play for 1928 is expected to be principally checkerboard work.

The reason advanced for the above play is that the Carson County pools of the Texas Panhandle with their limited production coming from the granite wash are believed to be the Ouachita Mountains present in Oklahoma. It is noticeable that Panhandle production has been found on the north flanks of the buried Ouachita range, and the intention to play the north flanks of the Ouachitas in Oklahoma gave the above-mentioned region its inspiration.

A second play for 1928 may be forthcoming in the northern part of the State and is really an extension of the play running through Barber County, Kansas. This play, if continued, will take in Woods and part of Woodward Counties, in Oklahoma.

A third play which is still in the formulative stage is seen in the possibility that some interest will be shown in the southeastern part of Oklahoma in a region which has long been shunned by the majority of operating companies. This part of the State was in a region which was precluded from consideration mainly on account of the carbon ratio theory, which indicated that rocks having a certain percentage of carbon would show regions which had no chances of producing oil. There seems to be some question of this theory being erroneous, and the discovery of a small showing in this part of the State has at least started a reconsideration. Heavy lease buying in Coal County in 1927 is an indication of prospective work there when conditions warrant it.

Kansas Wildcats

There seems to be two distinct wildcat plays which will have an exceptional interest in Kansas during 1928, one in the northern part and one in the southwestern part of the State.

The play in the north end consists of a leasing campaign which at this time seems destined to run southwest from the Rooks County discovery well, and which will embrace the counties of Grove, Logan, Osborne, Rooks and Trego. A large number of blocks have been assembled, most of them in Rooks County. The geological reconnaissance in that area was originally performed four years ago, and until the first production was found in Rooks County, little interest was displayed in this territory, although the presence of numerous anticlines was established.

In the southern part of the State, the principal play for the first part of 1928 seems to be centered around Barber County. The acquisition of several large blocks of acreage around this part of the State revealed that the geologists have favored the thought that possibly the trend of production from the Texas Panhandle might be extended to include this region.

East Central Texas

Notwithstanding the many failures to find other Mexias and Powells in the East Central Texas area, the opinion persists that the territory should not be considered as having exhausted its possibilities and this year will see a continuation of geophysical work in that area scattered over a number of counties. Already the Gulf Production Co. has a crew of Swedish scientists at work in the Mexia-Powell faulted district with a new scientific method of locating subsurface conditions conducive to the deposits of petroleum. The crew is working in territory where the subsurface conditions are already known, which will give the company an opportunity of checking the re-

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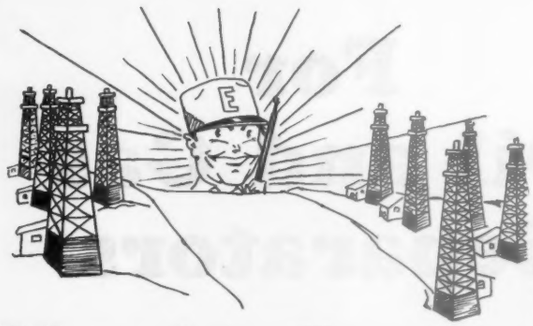

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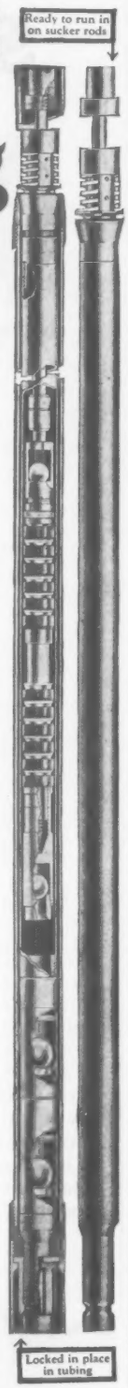

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sults of the new method with facts already established. At least two salt domes were proven last year in the area and work will be resumed in Anderson, Smith, Navarro, Cherokee and other near-by counties. Test work is not expected to be on an extensive scale this year, but companies operating in Texas will prepare for future needs with a large amount of preliminary geological exploration.

Big Play in West Texas

When the year opened there were rigs up or wells at one or another drilling stage in the following counties in West Texas, where no oil has yet been found in commercial quantity: Andrews, Bailey, Borden, Brewster, Coke, Culberson, Dickens, Edwards, El Paso, Fisher, Floyd, Gaines, Hale, Hockley, Hudspeth, Irion, Jeff Davis, Kent, Kinney, Lamb, Lubbock, Lynn, Menard, Midland, Motley, Nolan, Presidio, Reeves, Schleicher, Sterling, Stonewall, Terrell, Terry, Tom Green, Valverde and Ward, while the possibilities of other pools in Crane, Crockett, Ector, Garza, Glasscock, Howard, Loving, Mitchell, Pecos, Reagan, Scurry, Upton and Winkler Counties have by no means been exhausted. In 49 counties 210 wells were actively drilling and 125 drilling wells were shut down when this was written, which, added to 121 locations or rigs up, made a total of 456 operations started, out of which much or little may result. Ninety-two drilling wells have been started in counties where there has yet been no oil wells completed, while rigs are up in other counties not yet in the production list. West Texas wildcats are being watched with the closest interest. The tremendous production of pools in Reagan, Pecos, Winkler, Crane and Upton Counties has focused attention on this big territory which covers more ground than the State of Ohio, much of which, to use the old-timer's expression, "looks like oil country."

California's Prospects

California's 1928 prospects are set forth in detail in a special article elsewhere in this edition. California is one of the danger spots so far as big production is concerned and as a wildcat prospect it holds out what may be called a threat or a promise, depending on the point of view.

In the Gulf Coastal fields of Texas and Louisiana the work of hunting for salt domes will continue through the year. It was in that territory geophysical instruments were first used in seeking out domes and their success thus far will mean their continued use until all the domes hidden in that territory will have been located and mapped.

Louisiana-Arkansas

It appears there are at least four localities where wildcatting will be centered in North Louisiana and Arkansas during 1928—that territory surrounding each of the four districts, Pleasant Hill, Cartersville gas district, Richland Parish gas fields and Champagnolle. To what extent this exploration will be carried depends altogether upon two things—success of this exploration, the results obtained, as it is prosecuted, and whether or not California and West Texas duplicate in 1928 the performance of Seminole and California in 1927.

Mississippi in Line

Mississippi undoubtedly is in line for considerable wildcatting, but as yet it is largely an individual proposition with none too much capital behind the individuals. Practically all the major companies represented in North Louisiana and Arkansas and several that have shunned that territory in the past have gone in to a considerable extent for protection and may reasonably be expected to drill provided conditions in the industry as a whole are favorable—in other words, if the ratio between production and consumption of crude oil resolves itself into more of a balance than it has occupied in the last year or two. Mississippi has much proof to offer before it will be swamped with wildcatting; but it has already offered considerable testimony that would have been taken advantage of, say, in 1920.

Similarly, those wildcat parishes and counties of North Louisiana and Arkansas where prospecting has been going on for the last few years are apparently as attractive as ever. But with this difference—where surface geology and the drill, backed by money willing to be spent, were depended upon to prove or disprove a structure, the torsion balance, the seismograph, and the magnetometer with their attendant greater initial expense are gaining in favor.

EASTERN FIELDS

(Continued from Page 74)

Boyce farm. In Lee district, Calhoun County, the United Carbon Co. has made a location on the D. C. Craddock farm. In Sherman district, W. S. Dailey & Co. have made a location on the Charles Robinson farm.

On Breeden Creek of Twelve Pole Creek, Harvey district, Mingo County, the Public Gas Corp. has started to drill No. 29 on the Logan Cannel Coal Co.'s property.

Calhoun County

In Lee district, Calhoun County, the Hope Construction & Refining Co. is due in the sand at a test on the John Slider farm. In the same locality, Smith & Starcher are drilling on the Anna Slider farm. In Sheridan district, M. F. Crawley has started to drill on the J. A. Buck farm. In Sherman district, the Hope Natural Gas Co. has a rig up on the Anna Boyles farm. In the same district, C. B. Lewis and others are drilling a test on the Spencer White farm.

In Fairmont district, Marion County, the Owens Bottle & Machine Co. is starting tests on the Scott Arnett and Freeland-Merrifield farms. In Union district, Lincoln County, Roy & McComas have started to drill on the Randolph Sias farm. In Jefferson district, the Russell Gas Co. has a rig up on the James Cooper farm. In Simpson district, Harrison County, the Aizpurin Oil Co. is drilling on the Jesse Barnes farm. In Grant district, Doddridge County, Trainer Brothers are rigging up on the A. E. Martin farm.

Southeast Ohio

In the NW, Section 21, Harrison Township, Perry County, the Northeastern Oil Co. has drilled a test on its own property through the Clinton sand. They swabbed 9 bbls. the first 24 hours after shot. In the SE, Section 20, same township, the Pure Oil Co. completed in the same formation No. 3 on the P. Tague estate showing for a very light pumper.

In Section 18, Marion Township, Morgan County, the Lisbon Oil & Gas Co. has a duster at a test on the Leonard Wallace farm. In Addison Township, Gallia County, the Gordon Oil Co.'s test on the W. H. Reynolds farm is a gasser in the Berea grit.

In Section 17, Washington County, Isaac W. Atkinson has completed a test on his own farm. It is a very light pumper in the Macksburg 500-foot sand. No. 2 on the same farm has been completed good for 5 bbls. a day. In Section 7, Lawrence Township, J. O. Herlan and others have completed a test on the Isaac McKintrick farm good for 3 bbls. a day.

In Section 5, in the northeast quarter, Licking County, Ohio, M. F. Whitehill completed in the Berea grit Nos. 1 and 2 on the Samuel Burkholder farm. Both are light gassers. In Section 24, Fallsbury Township, same county, located in the southeast quarter, J. W. Cashdollar has completed a test on the Helen Young farm. It is a 5-bbl. pumper in the Berea grit.

In Section 74, Salem Township, Washington County, Charles Huffman & Co. completed a very light pumper on the J. J. Wharff farm. In Fearing Township, the Lankford Oil & Gas Co. completed a test on the Charles Semen farm. It is a light pumper in the Berea grit. In Salem Township, Weir & Schramm are drilling a test on the C. C. Palmer farm. In Independence Township, Edward Becker and others completed a second test on the Emmett Barger farm, good for 3 bbls. a day. In Island Creek Township, Sutton Brothers are drilling a test on the James Lee farm. In the same township, Blackburn & Co. are drilling on the E. T. Cashier farm.

(Continued on Page 226)

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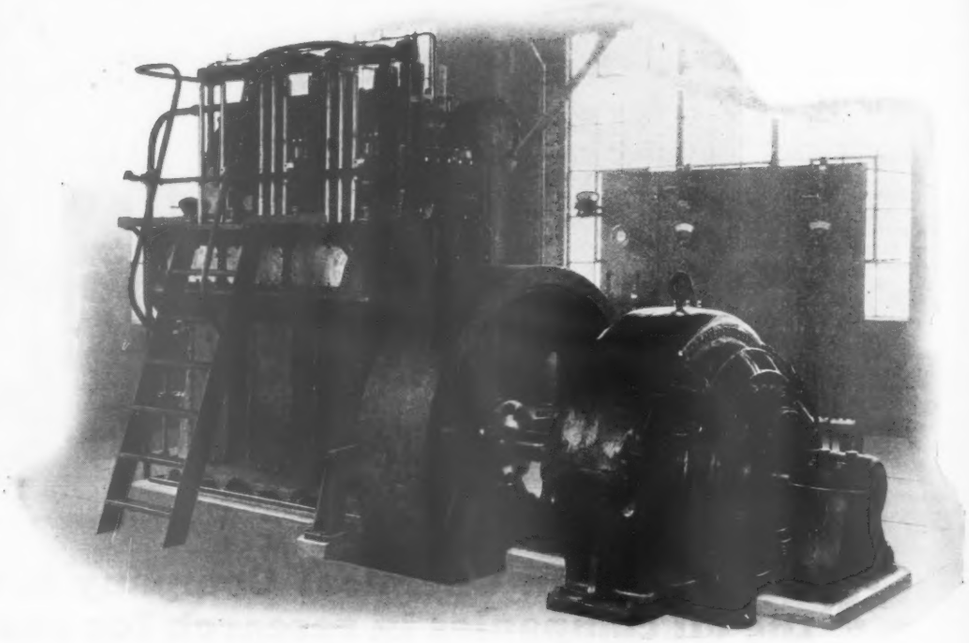

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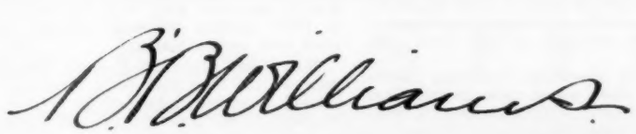


President

Lower Prices and Increased Demand

Gasoline Weakest Product on Atlantic Coast During 1927. Wax Prices Slipped at Close

By N. O. Fanning

New York Bureau, The Oil and Gas Journal, Room 629, No. 101 Park Avenue, New York, N. Y.

NEW YORK, Feb. 6.—Generally lower prices in the face of increased consumption featured the Atlantic Coast market for petroleum products during 1927. The depressed state of the market was due largely to overproduction.

Gasoline was the weakest product on the Atlantic Coast, although paraffin wax prices slipped off badly toward the end of the year. While prices of other products were lower, with the exception of kerosene, and petrolatum, quotations were maintained at much more satisfactory levels than was true of the gasoline market.

The direct result of the flood of Seminole oil was a heavy influx of Mid-Continent gasoline during the last six months of the year. California oil was a bigger factor at the beginning of 1927 than at the end of the year. South American oil loomed much larger in the Atlantic Coast market at the end of 1927, but its effect was softened by the decline in production in Mexico.

Gasoline

Competitive conditions in the gasoline market on the Atlantic Coast were worse in 1927 than in 1926. While the low gasoline prices were due in great part to overproduction of crude oil, the top-heavy condition of the retail market was also a factor. Although expansion in service station facilities by the larger oil companies seemed to decrease in 1927 compared with 1926, many new interests came into the retail market and in some instances cut prices to new low levels. Where a chain of 50 to 100 service stations cuts the retail price 3 or 4 cents below the existing market, it is bound to affect the general situation.

The tank wagon market on the Atlantic Coast reflected retail conditions. While leading marketing companies continue reluctant to admit the extent of reductions, the fact seems established as a result of a canvass of the service stations that tank wagon prices are pretty close to prewar levels. A further indication of the low level of tank wagon prices is the willingness of Atlantic Seaboard refiners to sell U. S. Motor gasoline in tank car lots at 8 to 8¼ cents f.o.b. refinery, to all comers.

While tank wagon deliveries continued on a big scale to garage and service stations throughout the Atlantic Seaboard, there was a growing tendency on the part of large gasoline users, including trucking companies, public utilities, and so on, to buy in tank car lots, setting up their own bulk storage facilities in their own yards. This resulted in expansion in tank car sales to record proportions.

Tank wagon gasoline prices during the year showed more irregularity than at any time in the history of the oil business. At the close of the year the market in New Jersey, New York and the coastal portions of New England ranged from 12 to 16 cents a gallon. Prices were ruled solely by competitive conditions in each particular section.

Consumption of gasoline in 1927 on the Atlantic is estimated to have showed an increase of between 10 and 15 per cent over 1926.

November and December consumption in 1927, however, is estimated to have increased more than 25 per cent over the same months of 1926, due to unusually warm weather prevailing during those months. This gain in consumption at the close of 1927 may have halted the downward course of gasoline prices, but it certainly did not result in any advance. Under ordinary conditions, marketers believe, the gasoline market would have been very strong as a result of this gain in demand.

Kerosene

The kerosene market on the Atlantic Coast during 1927 was firm throughout the year. The tank wagon market showed small changes, and the refinery market, after weakening somewhat at mid-year, improved and held this improvement until the close.

Water white kerosene continued a more important factor in the market, with a smaller proportion of prime white going into domestic channels. The refinery price of water white on the Atlantic Seaboard at the end of 1927 was 7½ cents, against 8¼ for United States motor gasoline. This shows the relative firmness of the kerosene market.

The relatively good position of the kerosene market was due principally to a better statistical position and a good export demand. The improvement in the domestic statistical position is regarded as reflecting less of a tendency to overproduce than in the case of gasoline, and to the gain in demand for furnace oil.

There were isolated instances of extreme competition in kerosene during the year, notably at some coastal points. At Baltimore a price war prevailed during most of the year with the result that tank wagon quotations were out of line with the remainder of the Atlantic Seaboard territory.

The domestic demand for kerosene as such on the Atlantic Coast was somewhat more restricted. While its use in farm tractors increased, the employment of the product for lighting purposes naturally continued to give way in the face of the extension of electrical lighting facilities. Furnace oil consumption demand increased steadily during the year, but was restricted somewhat at the close by warm weather.

Gas and Fuel Oil

The gas oil market, while yielding slightly in price, maintained a fairly even course. Demand continued good during the early months, but the restriction of "cracking" operations in Atlantic Coast refineries released some of the 32 gravity material and resulted in a lowering of the market. After mid-year, 28-30 gravity gas oil came in demand as a Diesel oil and the export demand for this grade increased. These two factors stopped the downward course of prices. Gas oil known here as "28 plus" ruled at 5½ cents in tank cars at Atlantic Coast refineries during the last six months of 1927.

The demand for Diesel oil was so good as to constitute a feature of the fuel oil situation during 1927. The hold now occupied by the motorship in world shipping is generally acknowledged. The New York market probably is the biggest Diesel oil market in the world as a result of the combination of the use of Diesel engines in ships, at railroad yards and in factories and power plants. The importance of this product to the petroleum industry is enhanced by the fact that it commands a substantial premium over bunker oil. Diesel oil is now quoted at $2.10 a barrel at New York for the marine trade, against $1.35 a barrel for bunker fuel oil.

Bunker fuel oil demand in 1927 was about the same as in 1926. Prices were lower as a result of increased production of comparatively low grade crude in West Texas and Venezuela, and acute competitive conditions throughout the world. The price dropped from $1.75 to $1.35 a barrel at New York, closing the year at the latter figure.

Lubricating Oil

Lubricating oil prices during 1927 were steady, with the exception of cylinder stocks, which closed the year slightly lower. Although in general consumption held up, the situation was spotty, increases in some lines being offset in part by decreased demand in others. A falling off in industrial activity resulted in restricting the demand for cylinder oils somewhat.

The motor oil trade was good throughout the year and especially during the past few months. A campaign launched against substitution of motor oils and the sale of crankcase drainings for new oils was successful and resulted in bringing up the quality of oils sold throughout the east. The campaign is still in force.

Industrial and automotive users of lubricants are growing more and more discriminating, which is in part due to the education of consumers in the use of the proper oils for every given purpose. Realizing the growing complexity of the market, the principal lubricating oil marketers are spending more and more time and effort on research in this field.

The growing use of Diesel engines, for instance, has opened up a new field for the perfection of lubricants. The eastern marketers of lubricating oils have developed special lubricants for this purpose and report a growing demand for them. The replacement of steam engines in ocean vessls with Diesel engines has changed the demand for lubricants, this being one instance of the problems which marketers have had to meet.

The range in domestic lubricating oil prices during 1927 in the East was small, being restricted to 2 or 3 cents in most instances. Red and pale paraffin oils were practically unchanged during the entire year, moving up 1 to 2 cents and then down toward the close of the year. Cylinder oils closed 1927 about 3 cents a gallon lower than at the beginning.

Paraffin Wax

The paraffin wax market was somewhat erratic during 1927. Prices moved up until the Fall, when they began to weaken, and at the end of the year were at their lowest. A comparison of refined wax prices at Bayonne (per pound in carload lots) at the beginning and end of 1927 follows:

	Jan. 1, 1928	Jan. 1, 1927
120-122 a.m.p.	$ 0.03⅞	$ 0.05⅝
125-127 a.m.p.	0.04	0.05⅝
130-132 a.m.p.	0.04½	0.06⅛
135-137 a.m.p.	0.05¼	0.06½

Crude scale wax followed practically the same course as refined.

The demand for wax in 1927 was good, but refiners had topheavy stocks. Late in the year a falling off in the export demand for refined resulted in increased competition for domestic business.

Petrolatum Market

The market for petrolatum in the east was firm throughout 1927. Demand was good and prices held steady, with cream, lily white and snow white turning strong at the close of the year. The domestic price situation was influenced largely by export sales, which increased during the final months.

Prices at the beginning and end of 1927 were as follows (per pound in carload lots):

	Jan. 1, 1928	Jan. 1, 1927
Dark green	$ 0.01¾	$ 0.01¾
Amber	0.03⅝	0.03⅝
Extra amber	0.03¾	0.03¾
Cream	0.06½	0.05½
Lily white	0.08½	0.07½
Snow white	0.09½	0.08½

Cream, lily white and snow white became increasingly scarce during November and December, but it was believed increased prices would serve to spur production and relieve the situation.

FINANCIAL REVIEW OF THE YEAR; MERGERS AND NEW FINANCING

By N. O. Fanning

New York Bureau, The Oil and Gas Journal, Room 629, No. 101 Park Avenue, New York, N. Y.

NEW YORK, Feb. 6.—The year past was a generally unfavorable year for the oil industry and a favorable year for the natural gas industry, from a financial viewpoint.

The annual reports of the leading petroleum companies for 1927 are yet to be published. It is believed that when they are, they will show small profits in some instances and losses in others. Many of the natural gas companies will probably report record earnings, but probably not as large as some expect because favorable developments initiated in 1927 will not begin to bear fruit until 1928.

The oil companies reporting profits will be those whose gross business has increased and costs decreased, a combination which might offset in part the low price levels which existed during most of the year.

The trading in petroleum securities on the New York Stock Exchange during 1927 was almost the same in volume as during 1926. Shares traded in amounted to 54,925,170, against 53,413,504 in 1926. The second most active issue was that of Houston Oil, in which the trading reached 5,703,600 shares, with a net gain of 94¾ points for the year. As the amount of stock of Houston Oil outstanding at the close of 1926 was 249,686 shares of $100 par value, the volume of trading for 1927 was equivalent to each share being "turned over" about 22 times. As it is not likely the entire capitalization was available for trading purposes, the tremendous activity in the shares is considered all the more remarkable.

The effect of the merger of Associated Oil Co. and Tide Water Oil Co., which involved the purchase of the former company by Tide Water Associated Oil Co., is seen in the inactivity of Associated Oil stock in 1927 compared with 1926. Trading in 1927 amounted to only 5,710 shares, compared with 1,073,472 shares in 1926, showing the small amount of stock now on the market.

The Royal Dutch-Shell stock issues listed on the New York Stock Exchange showed a marked falling off in activity in 1927. Trading for the two years was as follows, (No. shares):

	1927	1926
Shell Tr. & Tr.	16,100	20,500
Shell Union Oil	683,500	1,802,900
Royal Dutch, N. Y. sh.	155,350	258,700
Total	854,950	2,082,100

This shows a falling off in activity of considerably over 50 per cent.

American Republics stock became active toward the end of 1927, and the total trading for the year was 649,200 shares, compared with 22,970 shares in 1926.

Oil Bonds More Active

Trading in oil bonds on the New York

(Continued on Page 229)

CONFIDENCE

A new kind of "confidence game"

THE NEW KIND of confidence game is played by American industry. The rules are simple. You select those companies in whom you have complete confidence and you buy their products.

That's why Haynes Stellite is proud of 1926.

It was a year of progress and of achievement. Stellited bits drilled oil wells, with enviable records of economy and speed. Stellited parts cut down maintenance costs in cement mills. Stellited tools extended the usefulness of Haynes Stellite in machine shops and automotive factories.

Booklets describing the use of Haynes Stellite and the Stelliting process will show you where you can use them in your business. They will gladly be sent on request.

HAYNES STELLITE COMPANY
Unit of Union Carbide and Carbon Corporation
KOKOMO, INDIANA

District Sales Offices: Carbide and Carbon Building, 30 East 42d Street, New York; Peoples Gas Building, Chicago; Keith Building, Cleveland; General Motors Building, Detroit; 114 Sansome Street, San Francisco; 1310 Santee Street, Los Angeles.

Excerpt from first advertisement in 1927

MORE people played the new kind of confidence game with us in 1927 than ever before. We are naturally proud of this record.

Yet, after all, there is nothing mysterious about it. Our trump cards were Quality, Uniformity, Service and Fair Dealing. There are no aces up the sleeve in the kind of confidence game we are talking about. All cards are on the table and everybody wins.

We enjoyed playing the game with our customers last year. We intend playing the same game this year in the same way.

Plan to join us in 1928. Our present customers will tell you how successfully the new kind of confidence game is played.

HAYNES STELLITE COMPANY
Unit of Union Carbide and Carbon Corporation

UCC

DISTRICT SALES OFFICES

Chicago—*1949 Peoples Gas Bldg.* Los Angeles—*1310 Santee Street*
Cleveland—*628 Keith Building* New York—*30 East 42d Street*
Detroit—*4-240 Gen'l Motors Bldg.* San Francisco—*114 Sansome St.*
Houston—*6119 Harrisburg Blvd.* Tulsa—*Exchange Nat. Bank Bldg.*
General Offices—Kokomo, Indiana

Stelliting with

HAYNES STELLITE

"Jones New Steel SUCKER RODS"

Here is a new Jones Rod which we feel is the peak of the forging art,—the crowning achievement of our many years of experience in the making of the best Sucker Rod.

Built to A. P. I. Specifications,—the new Jones Sucker Rod Combines the ideal advantages of a forged box and pin with a new high-test steel which not only increases the fatigue resistance 150% over the usual sucker rod steel but also increases the elastic limit more than 40%.

And to cap the climax,—we have eliminated just one-half of the joints ordinarily required. Naturally this will save you much time and trouble in stringing.

Once you try these new Jones Sucker Rods you'll agree with many other field men that this is the best Sucker Rod ever produced—bar none.

The S·M·JONES CO.
TOLEDO OHIO.
602 WRIGHT BLDG. TULSA, OKL.

BULK EXPORTS OF REFINED OIL SUPPLANTING CASES AND BARRELS

By N. O. Fanning

New York Bureau, The Oil and Gas Journal, Room 629, No. 101 Park Avenue, New York, N. Y

NEW YORK, Feb. 6.—The port of New York is estimated to have accounted for 7 per cent of the petroleum exports from the United States in 1927. About 10 per cent of the gasoline exports, 6 per cent of the kerosene and about 27 per cent of the lubricating oil went from this port.

Total shipments for 1927 from New York as estimated from ship manifests, were as follows:

	Gallons
Gasoline	186,244,411
Kerosene	46,520,632
Gas and fuel	9,087,555
Lubricants	105,747,069
Total	347,399,067

In addition there were exported 50,324,780 pounds of refined paraffin wax and 39,203,455 pounds of crude scale wax, a total of 89,528,235 pounds, or approximately 27 per cent of the total wax shipments from the United States.

Of the total exports from New York of gasoline, kerosene, gas oil, fuel oil and lubricating oil, combined, of 347,399,067 gallons, 263,733,057 gallons were shipped in bulk tankers, or about 76 per cent; barreled shipments amounted to 47,852,650 gallons, consisting entirely of lubricating oil, while shipments in cases aggregated 135,813,360 gallons, of which kerosene accounted for 76,634,240 gallons, and gasoline 50,481,990 gallons.

Petroleum asphalt shipments from New York in 1927 are estimated at 72,484 tons, or about 20 per cent of the estimated total for the whole country.

New York is the leading port for exporting petroleum in containers. Although figures for the whole country are not available it is estimated more than 50 per cent of the exports of lubricating oil in barrels go from this port, while 30 per cent of the cased exports of gasoline and kerosene are accounted for here. This fact is due in part to the availability of cargo vessels to all parts of the world, and especially to the Orient, Africa and South America, to which most of the shipments in containers are consigned.

There is an increasing tendency at this port as well as others toward replacement of exports in containers by bulk shipments, made possible by the growth in consumption in countries formerly supplied in cases and barrels only. In some countries like Brazil and Argentina greater consumption in cities has brought about the use of tank wagon deliveries whereas formerly all products had to be supplied in cans. In other countries case factories have been erected so that goods are cased there instead of in the United States.

However, case and barrel shipments still form a major part of the business in South America, Africa and in parts of the Orient, and probably will for some time to come.

The following table shows exports of the principal petroleum products from New York during 1927 in bulk, barrels and cases (figures in gallons):

	Gasoline	Kerosene	Gas and Fuel	Lub. Oil
Bulk	135,762,421	69,685,792	9,087,555	49,197,289
Barrels	.....	.....	.....	47,852,650
Cases	50,481,990	76,634,240	.....	8,697,130
Total	186,244,411	146,320,032	9,087,555	105,747,069

The bulk exports were almost entirely to Europe, although an occasional bulk cargo went to the Orient or South America.

Export Prices Decline

Oil export prices at New York were generally lower at the close of 1927 than at the beginning. In fact, prices at the end of the year were at their lowest levels. Gasoline showed the biggest decline, U. S. Motor gasoline in cases falling 4 cents from 27.90 to 23.90 cents per gallon.

The following table shows oil export prices at New York at the beginning and end of 1927:

	January 1— 1928	1927
U. S. Motor gasoline, in cases	23.90	27.90
S. W. kerosene, in cases	17.15	19.15
W. W. kerosene, in cases	18.15	20.65
600 standard refined cylinder oil, in barrels	17.00	19.00
Light 135 bright stock, in barrels	40.00	43.00

Prices during the final month of 1927 were more or less stationary, and it was believed in some quarters the next move will be upward. However, the export situation has not cleared itself up yet, and, according to export men, the outlook is still uncertain.

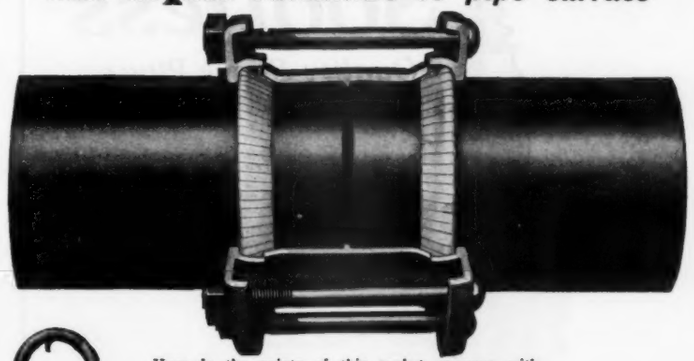
Weekly Exports

The following table shows weekly exports of gasoline, kerosene, lubricants, gas and fuel oil and wax, from the port of New York, for 1927:

Week ended, 1927—	Gasoline, Gals. Bulk	Gasoline, Gals. Cases	Kerosene, Gals. Bulk	Kerosene, Gals. Cases	Gas-Fuel Gals. Bulk
January 5	686,328	1,735,300	724,446	1,275,190	.....
January 12	7,698,915	342,990	2,708,839	784,590	914,582
January 19	1,434,069	300,000	78,069	460,000	263,177
January 26	10,454,578	456,000	3,252,612	2,303,110	278,878
February 2	740,400	1,084,690	1,474,400	719,240	.....
February 9	808,050	1,558,010	680,450	955,130	.....
February 16	957,038	753,000	.....	482,000	.....
February 23	1,474,550	304,000	.....	316,500	.....
March 2	4,241,000	3,032,440	3,948,000	2,011,330	.....
March 9	478,025	1,353,240	724,567	2,933,480	.....
March 16	.....	1,411,520	.....	1,458,920	.....
March 23	1,815,744	1,199,500	1,817,088	806,980	.....
March 30	.....	105,000	.....	221,500	.....
April 6	3,335,346	732,990	.....	710,450	.....
April 13	.....	2,562,990	235,004	3,723,280	.....
April 20	4,137,713	970,050	3,460,009	1,583,990	.....
April 27	4,701,228	474,360	1,823,934	1,042,000	.....
May 4	.....	835,160	.....	1,736,990	.....
May 11	.....	1,156,400	.....	2,260,150	.....
May 18	3,357,312	388,000	1,857,240	1,432,680	.....
May 25	7,085,804	391,990	9,320,590	2,434,200	1,114,344
June 1	.....	1,518,750	.....	1,433,840	.....
June 8	2,515,000	645,700	1,194,700	565,930	.....
June 15	.....	703,990	.....	2,768,500	.....
June 22	3,195,600	906,090	3,437,590	516,740	.....
June 29	.....	623,000	.....	1,553,050	.....
July 6	5,624,250	1,296,160	1,646,400	1,213,990	.....
July 13	14,676,230	555,590	3,213,714	2,085,770	.....
July 20	.....	771,750	.....	1,534,830	.....
July 27	.....	.....	.....	1,729,690	.....
August 3	.....	1,223,460	.....	842,980	.....
August 10	2,673,192	1,478,890	.....	717,750	.....
August 17	5,952,911	169,500	3,506,000	590,840	.....
August 24	.....	2,637,210	.....	2,248,860	.....
August 31	.....	590,000	235,249	2,525,980	.....
September 7	.....	1,447,410	4,057,200	776,470	.....
September 14	5,205,127	100,000	1,094,195	940,000	.....
September 21	2,805,054	1,635,170	.....	2,260,810	.....
September 28	.....	489,500	.....	619,300	.....
October 5	.....	1,108,280	.....	1,047,760	.....
October 12	1,049,291	779,320	623,701	1,808,860	.....
October 19	104,660	735,950	.....	2,242,590	.....
October 26	5,080,742	1,634,000	3,429,460	2,680,570	7,630,918
November 2	2,785,095	3,352,500	3,100,000	3,282,500	.....
November 9	.....	336,990	.....	449,930	.....
November 16	.....	335,400	.....	552,760	.....

(Continued on Page 226)

Exhaust Coupling Gaskets
that do not vulcanize to pipe surface



How do the points of this gasket compare with those you have been using?

The armor permits easy contraction and expansion; flexible, compressible and easily installed; can be used over and over again; asbestos core can't disintegrate; metal foil can not stick or vulcanize to pipe; resists acid; seals perfectly; handles high temperature exhaust conditions perfectly.

Specify and buy "John Crane" Armored Gaskets for Dresser or Dayton joints. Write for sample and quotations.

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1819 Cuyler Ave., Chicago
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Whealton & Townsend TULSA
Slough, Bucks, England

"John Crane" Armored Gaskets
"A Complete Service in Flexible Metallic Packing"

SUNRAY OIL COMPANY

An Oklahoma Corporation

Producers of Petroleum

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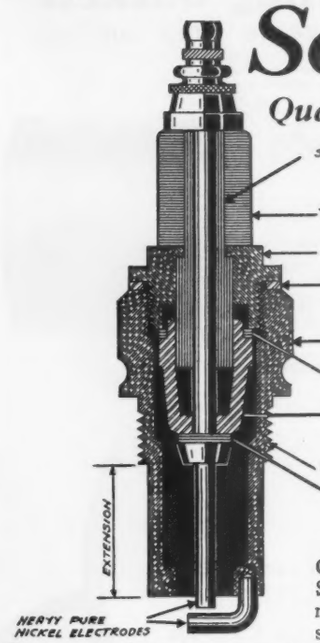
Sootless

Quality Spark Plugs



Construction shows you why Sootless Spark Plugs give more than three times the service of other plugs.

You know the value of steadily maintained power. You can eliminate expensive delays and inefficiency of engine operation by using Sootless Spark Plugs. We will meet you more than half way in demonstrating their superiority in actual service.

Write for our proposition.

Order by mail or wire. All orders filled on day of receipt.

Sootless Spark Plug Company
247 Atlantic Avenue, Boston, Mass.
Spark plug makers for 30 years

The Last Word—

—in successful corrosion-combating in the Oil Refinery

SWEETALOY

—Still Plugs
—Return Bend Fittings
—Thermocouple Wells
—Tube Supports
—Valve and Meter Trim
—Pump Castings, etc.

Made of chromium-iron and nickel-chromium-iron alloys.

Write for particulars.

WM. J. SWEET FOUNDRY CO.
IRVINGTON, N. J.

Many Businesses

have been built by the use of consistent classified advertising. Keep your ad running regularly. The results are accumulative.

The OIL and GAS JOURNAL
PRODUCING REFINING MARKETING
Classified Wants Department

Week ended, 1927—	Gasoline, Gals. Bulk	Gasoline, Gals. Cases	Kerosene, Gals. Bulk	Kerosene, Gals. Cases	Gas-Fuel Gals. Bulk
November 23	7,264,700	1,563,290	3,003,800	1,879,930	.....
November 30	.....	634,600	.....	2,325,840	.....
December 7	4,940,494	282,100	3,945,270	1,045,940	.....
December 14	12,825,939	242,690	2,965,771	1,312,000	.....
December 21	1,922,579	1,525,980	662,494	2,494,620	.....
December 28	3,735,657	221,250	1,470,000	931,200	.....
Total	135,762,421	50,481,990	69,685,792	76,634,240	9,087,555

Week ended, 1927—	Lubricating Oil, Gals. Bulk	Lubricating Oil, Gals. Barrels	Lubricating Oil, Gals. Cases	Par. Wax, Lbs. Bags	Par. Wax, Lbs. Barrels
January 5	.....	1,372,650	257,180	378,400	369,550
January 12	5,468,009	1,104,750	176,210	938,520	675,450
January 19	.....	1,862,100	49,330	4,461,040	560,500
January 26	2,572,674	1,058,500	129,080	712,140	654,550
February 2	.....	615,150	230,000	536,140	.....
February 9	.....	1,457,050	284,570	1,920,820	2,076,750
February 16	.....	928,300	55,500	746,680	.....
February 23	.....	159,200	24,290	83,380	.....
March 2	4,908,000	278,950	147,710	1,084,600	106,875
March 9	.....	507,300	263,940	336,380	280,250
March 16	.....	27,100	327,240	829,400	.....
March 23	1,668,366	346,100	546,260	1,512,940	.....
March 30	.....	36,250	183,070	917,840	.....
April 6	.....	560,450	336,280	1,476,640	.....
April 13	2,396,830	1,124,500	89,830	2,516,140	807,975
April 20	2,273,460	1,131,500	172,920	1,160,720	236,075
April 27	.....	425,250	21,550	463,540	606,100
May 4	1,609,692	2,459,250	655,560	1,228,260	295,450
May 11	.....	534,450	70,370	672,760	888,725
May 18	1,491,327	1,446,450	171,100	.....	681,625
May 25	2,633,877	1,167,950	93,340	1,495,140	1,758,925
June 1	.....	404,300	105,540	640,640	181,450
June 8	2,697,190	1,142,350	95,980	308,000	408,025
June 15	.....	644,300	179,400	330,000	.....
June 22	.....	1,202,100	130,270	418,000	686,000
June 29	.....	1,333,350	189,700	1,844,920	712,025
July 6	.....	818,950	188,840	943,800	1,259,225
July 13	.....	1,183,150	129,460	580,360	1,391,275
July 20	.....	1,369,650	457,510	498,520	1,662,175
July 27	3,286,167	615,750	114,860	440,000	2,017,800
August 3	.....	1,014,750	76,990	1,165,560	1,044,525
August 10	.....	696,700	142,220	255,200	.....
August 17	1,485,000	1,389,500	107,560	220,000	.....
August 24	.....	871,050	163,640	1,577,180	875,900
August 31	1,474,441	802,550	263,680	1,223,640	966,525
September 7	1,545,600	1,071,950	157,600	1,054,680	1,547,550
September 14	2,049,600	862,700	50,010	1,789,480	199,500
September 21	.....	1,182,950	355,160	275,000	828,875
September 28	.....	830,350	104,100	514,800	112,575
October 5	.....	1,422,900	130,490	1,537,580	3,108,875
October 12	4,182,988	1,384,850	94,860	401,940	1,313,850
October 19	.....	1,342,350	180,970	1,580,260	1,627,350
October 26	1,837,351	854,200	224,670	441,540	826,975
November 2	.....	697,150	55,550	609,620	1,812,125
November 9	.....	337,250	74,140	356,400	483,075
November 16	.....	899,200	52,190	979,000	190,000
November 23	187,300	1,159,900	271,930	1,288,540	299,250
November 30	.....	324,600	50,610	132,000	326,325
December 7	4,981,445	1,203,950	11,510	3,014,220	542,630
December 14	447,972	394,900	57,230	607,860	1,394,600
December 21	.....	943,700	100,050	387,200	3,237,125
December 28	.....	808,100	95,080	1,537,360	268,050
Total	49,197,289	47,852,650	8,697,130	50,324,780	39,263,455

EASTERN FIELDS

(Continued from Page 218)

In the shallow sand territory in southeast Ohio, Section 3, Hanover Township, Licking County, E. J. Edmons & Co. have completed in the Berea grit No 5 on the John C. Williams farm. It produced 25 bbls. the first 24 hours after shot. In Section 1, Mary Ann Township, the Preston Oil Co.'s test on the W. H. Miller farm is a 5-bbl. pumper in the same formation.

Hocking County

In the SW of Section 36, Falls Township, Hocking County, the Clark Oil Co.'s test on the Clark heirs' farm is good for not more than 5 bbls. a day in the Clinton sand. In the SW of Section 16, Aurelius Township, Washington County, W. T. Warren & Co. have a 4-bbl. pumper in the Berea grit at a second test on the J. C. McBride farm.

In the NE of Section 26, Rush Creek Township, Fairfield County, B. F. Whitehill has completed in the Clinton sand a test on the Jesse Grove farm. It is showing for a 10-bbl. pumper.

In Section 18, Killbuck Township, Holmes County, the East Ohio Gas Co. has completed a second test on the F. H. & L. E. Gardner farm. It is a gasser in the Clinton sand good for 750,000 feet and showing a little oil.

In the SW of Section 5, Olive Township, Noble County, O. E. Marquie has drilled No. 5 on the Steen heirs' farm into the Berea grit good for 4 bbls. a day.

Starting Tests

In Section 20, Harrison Township, Perry County, the Snider Oil Co. has started to drill a test on the George Wilson farm. In Section 21, C. H. Fouts, trustee, has a rig up on the David E Allen farm. The Pure Oil Co. is drilling on the Catherine Moore farm. In the same section, W. W. and A. T. Wehrle are due in the sand on the Claude Pletcher farm. The same parties have a rig up on the A. M. Rodgers farm. William Cline & Co. are due in the Clinton sand on the C. M. King and Timmons Coal Co.'s farms. David Melick, trustee, is fishing at 2,000 feet on the Charles Buckner farm. The Valley Petroleum Co. is due on the J. R. Springer farm. The Twin City Oil & Gas Co. is drilling on the Asbury Garlinger farm. The Fairview Oil & Gas Co. is drilling on the L. Gregg farm. Harrison Township is now the most active in Perry County.

In the NE of Section 21, Wayne Township, Belmont County, C. O. Moore & Co. have a 3-bbl. pumper in the Keener sand at a second test on the Rodd Carpenter farm.

In the Fisher Pool, Section 4, Alexander Township, Athens County, J. A. Ronshausen and others have completed a gasser in the salt sand at a second test on the Harry Hooper farm. Between Danas Run and the Ohio River, in Section 28, Newport Township, Washington County, W. J. Todd & Co.'s No. 3 on the A. Reynolds farm is a duster in the Keener sand.

Southwest Pennsylvania

In Perry Township, Greene County, the Philadelphia Co. drilled deeper No. 1 on the David Ammons farm. It is a gasser in the Bayard sand. In Wayne Township, H. D. Freeland's test on the Jacob Yeager farm is a gasser in the same formation.

In Springhill Township, W. R. Tagg has a 4-bbl. pumper at a second test on the J. D. Dukate farm. In Richhill Township, Boundy Brothers have a gasser in the Gordon sand at a test on the L. Cooper farm.

In Robinson Township, Allegheny County, M. Malkovich has drilled a test on a Grove town lot into the Hundred-foot sand and showing for a 5-bbl. pumper.

ANGLO-PERSIAN RESEARCH

In the mining department of the University of Sheffield, in addition to the drying and low-temperature carbonization of coal, is the production of liquid fuels by heating a mixture of water gas and hydrogen under pressure. Special research work is being carried out on behalf of the Anglo-Persian Oil Co., with the object of perfecting a method of manufacture of liquid fuel from the large quantities of natural gas produced in the oil fields.

Six XOB units near Earlsboro, Okla.

24 XOB machines in the Bowlegs field, Oklahoma.

A battery of XOB Compressors in Crane County, Texas.

The Oil Industry Pays a Tribute To the XOB Compressor

In various oil fields, long rows of XOB Compressors are furnishing the pressure that moves the oil to the surface. Great batteries of these dependable units are providing the essential lifting power where natural pressure has failed.

These solid banks of XOB machines comprise the best endorsement of their fitness. They are the answer of experienced oil producers to the question: "What compressor is most efficient for gas lift and air lift service?"

Since the XOB was placed on the market in December, 1926, it has been installed in greater numbers in the Seminole field than all other types of compressors combined. Its leadership extends also to other fields, such as the new producing area in West Texas.

The XOB has gained this tribute on its merits. It was designed to meet the specific needs that arose when the oil industry accepted gas lift and air lift as the most modern method of raising oil.

Having been built for this particular service, the XOB has quite naturally proved a superior machine for the work.

INGERSOLL-RAND COMPANY, 11 Broadway, New York, N. Y.

Offices in principal cities the world over.

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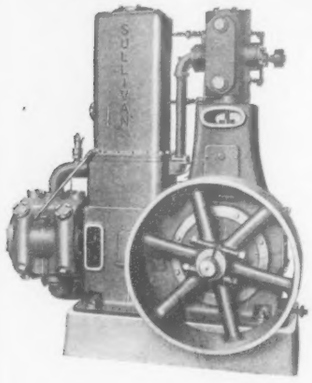
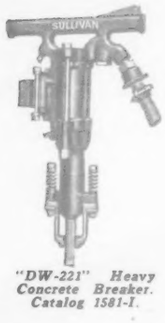
899-C

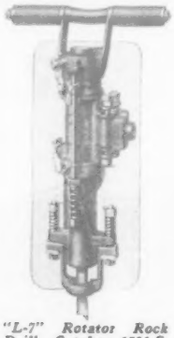
Ingersoll-Rand



The Compact "W-J-3" Angle Compound Compressor for gas or air lift. Good for pressures from 250 to 1000 lbs. Catalog 1583-G.



"DW-221" Heavy Concrete Breaker. Catalog 1581-I.



"L-7" Rotator Rock Drill. Catalog 1581-S.

"DH-361" Clay Spader Catalog 1581-J

"WK-314," 310-ft. Vibrationless Portable Compressor, on steel wheel truck. Catalog 1583-F.

Sullivan Air Power Equipment

For Gas and Air Lift
For Pipe Line and Refining Tasks

"HA-3" 6½ H.P. Portable Turbinair Hoist. Catalog 1576-F.

New Gas Lift Compressors Make Good

Sullivan Angle Compound Gas and Air Lift Compressors are already making good in the Mid-Continent field. They were designed especially to suit the capacities and pressures, and the severe conditions of oil field service and their field performance has made this promise good.

Angle compound compactness, and freedom from vibration, permitting use of small foundations, or even skid mountings, are features especially appreciated by oil men.

Angle Compounds are available for pressures from 250 to 1000 lbs., and are adapted to short belt drive, or to direct connection to electric motor, Foos Gas Engine, or Fairbanks-Morse Oil Engine. *Catalog 1583-G.*

Vibrationless Portable Compressors

Sullivan Vibrationless Portables will give you dependable portable air power for your construction work. They are available in six sizes from 103 to 310 cu. ft., on steel wheels, trailer trucks, or skids. Drive is by the popular Buda gasoline engine, equipped with Bosch Magneto and Zenith Carburetor to make starting easy. Electric compressors are also available. *Catalog 1583-F.*

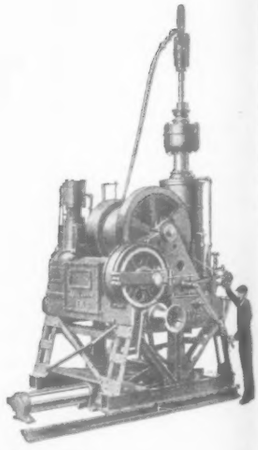
Rock Drills, Concrete Breakers, Clay Spaders

Sullivan Rock Drills, Concrete Breakers, and Clay Spaders save time in excavating for pipe lines and other construction. *Catalogs 1581-S, 1581-I, 1581-J.*

Portable Hoists

Sullivan Turbinair Hoists are used by many oil companies for erecting steel tanks and for other hoisting and hauling jobs. Lightness, portability, and ability to lift 2000 lbs. on 75 lbs. of air, are features. *Catalog 1576-F.*

Sullivan Gas and Air Lift Compressors and Sullivan Portable Compressors and Hoists are distributed in the Mid-Continent field by the Continental Supply Company, St. Louis.



"F-K" Drill for deep tests. Has taken core from below 6000 ft.

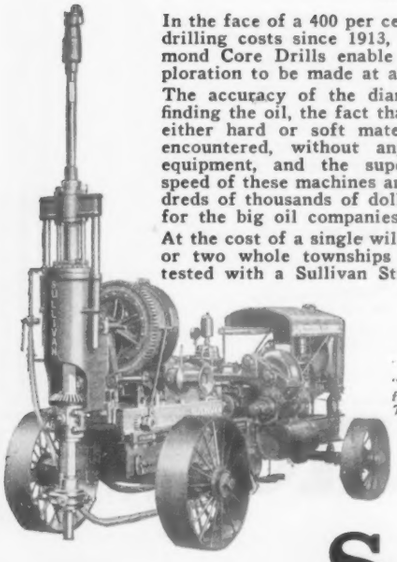
Sullivan Diamond Core Drills

Mean Lower Exploration Costs

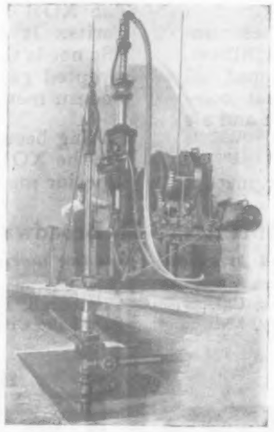
In the face of a 400 per cent increase in drilling costs since 1913, Sullivan Diamond Core Drills enable complete exploration to be made at a large saving.

The accuracy of the diamond drill in finding the oil, the fact that it will drill either hard or soft material, as it is encountered, without any change of equipment, and the superior drilling speed of these machines are saving hundreds of thousands of dollars, annually, for the big oil companies.

At the cost of a single wildcat well, one or two whole townships can be fully tested with a Sullivan Structure Drill.



"CN" Portable Drill for structure testing. Takes a 2-in. core at 2,000 ft.



"P-2" Drill equipped with Pressure control apparatus. The "P-2" will take core at 4000 ft.

With the cores obtained geologists can readily measure the depth to the key bed, map and trace the anticline and locate the oil.

For deep tests, the "FK" and "P-2" drills are used. The "P-2" has taken core at 4000 feet, and the "FK," below 6000 feet.

Cores obtained by Sullivan Diamond Drills are actual samples of the strata penetrated, and are accepted by investors everywhere as conclusive evidence of the value of the property.

An 80-page handbook "Diamond Drilling for Oil" is yours for the asking. Send for it today.

This 80-page handbook will be mailed free on request. Just ask for "Diamond Drilling for Oil."

SULLIVAN

SULLIVAN MACHINERY COMPANY 88 East Adams Street, Chicago

Dallas Tulsa Garber Oklahoma San Francisco London Paris Tokyo Mexico Calcutta

FINANCIAL REVIEW OF THE YEAR 1927

(Continued from Page 222)

Stock Exchange during 1927 reached a new high record of $115,997,000 par value, compared with $95,599,000 par value during 1926, and $96,698,000 in 1925.

The most active issue was the Barnsdall corporation 6s, which was traded in to the extent of $18,658,000 par value. The next most active issues were Standard Oil Co. of New York 4½s, with $12,472,000 par value traded in, and Standard Oil Co. of New Jersey 5s, with $11,409,000 par value.

Oil bonds were generally firm during 1927, in contrast to the mixed trend of stocks. Net gains for the year in the various issues were the rule, rather than the exception. The calling of some issues of course resulted in their advance to the call price. Several new bond issues were placed on the market, as indicated by the table of new financing given below.

New Financing $400,000,000

New financing by the leading oil companies in 1927 exceeded $400,000,000, making what is believed to be a high record. Two factors contributed to the large total. First was the fact that there was a tremendously good market for new issues and lower money rates enabled many oil concerns to replace former issues with new issues bearing lower interest rates. Secondly, expansion of the oil industry in the face of low prices necessitated new financing in some instances.

Several of the new issues were directly traceable to the desire for funds for pipe line construction, part of the Shell Union Oil issue of $50,000,000 and Humble Oil issue of $25,000,000 being credited to that form of expansion.

The following table shows the principal new financing for 1927:

New Oil Financing

Company, Type of Issue	Par Value or Offering Price
Gulf Oil Corp., bonds	$ 35,000,000
Carib Syndicate, stock	587,000
California Pet., debentures	8,000,000
Bataafsche Pet., debentures	25,000,000
Skelly Oil, debentures	15,000,000
California E. O., bonds	7,500,000
California E. O., debentures	5,000,000
Humble O. & R., bonds	25,000,000
Independent O. & G., debentures	6,500,000
White Eagle O. & Rfg., bonds	5,000,000
Warner-Quinlan Co., debentures	2,500,000
Shell Union Oil, debentures	50,000,000
Empire O. & Rfg., bonds	30,000,000
Marland Oil, notes	30,000,000
Phillips Pet., debentures	40,000,000
Empire G. & F., notes	18,000,000
Reiter-Foster Oil, stock	800,535
Pure Oil, notes	20,000,000
Pure Oil, stocks	5,000,000
Sinclair Con. Oil, bonds	20,000,000
Continental Oil, debentures	12,000,000
Sinclair Crude Purch., bonds	42,000,000
Total	$402,888,035

The outlook is for further heavy financing in 1928, in as much as oil conditions are still somewhat depressed and on the other hand, the money situation continues easy.

Merger Possibilities

With the merger of The Texas Corporation and California Petroleum Corp. expected to be consummated, conditions in the oil industry, in the opinion of students of the situation, point to further mergers in 1928. Of course the anti-trust laws are serving to restrict negotiations pointing to mergers, but, on the other hand, there are cases where consolidations would be logical from the viewpoint of all concerned. Premature discussion of merger possibilities are as a rule obnoxious to companies named, but it can be said that it is likely several consolidations will be announced in 1928 of major importance. These will involve the combination of producing and refining interests, and of domestic and export organizations, for the most part, it being conceded that the oil company having the best chance of success under present conditions is the company well-balanced in every branch of the business.

The following table shows sales of stocks and bonds of oil companies listed on the New York Stock Exchange for 1927 and 1926, with closing prices and year's changes:

Company—	Sales 1927	Sales 1926	Closing Price 1927	Year's Net Change
Amerada Corp.	603,100	481,200	30¼	— 1⅞
American Republics	649,200	22,970	74⅞	+33⅞
Associated Oil	5,710	1,073,472	41⅞	— 7¼
Atlantic Refining, com.	1,054,500	647,400	107½	— 6½
Atlantic Refining pfd.	8,900	7,900	117	+ ¾
Barnsdall Corp., "A"	2,475,070	890,600	25⅛	— 2⅝
Barnsdall Corp., "B"	131,950	69,600	24¾	— ⅝
Beacon Oil	55,400	.....	16	.....
California Petroleum	870,650	2,156,400	24⅝	— 6¼
Houston Oil	5,702,600	125,400	156⅛	+94⅜
Independent Oil & Gas	860,000	1,359,600	25½	— 4⅛
Indian Refining, com.	231,400	187,800	9½	+ 1¼
Indian Refining, pfd.	8,500	4,200	103	+ 7
Lago Oil & Transport	748,000	2,798,700	34⅞	+12⅝
Louisiana Oil Ref., com.	1,329,000	934,600	10½	— 6½
Louisiana Oil Ref., pfd.	11,430	.....	90¾	— 5¼
Maracaibo Oil Explor.	126,900	274,400	16	— 2½
Marland Oil	3,876,900	5,346,700	35	—22½
Mexican Petroleum	560	.....	320	.....
Mexican Seaboard Oil	164,600	344,900	5	— 2½
Mid-Continent Petrol., com.	1,475,000	1,678,600	29¼	— 6
Mid-Contineint Petrol., pfd.	9,500	.....	104½	+ 1½
Middle States Oil	1,095,900	503,100	2¼	+ ⅝
National Supply, com.	279,700	294,300	96½	+14
National Supply, pfd.	4,230	2,300	117	+ 3½
Oil Well Supply, com.	393,800	86,300	35½	+ 1⅜
Oil Well Supply, pfd.	12,600	3,000	108	— ¼
Pan American Pet. & Tr.	335,875	207,770	43⅝	—20
Pan American P. & T. B.	2,938,500	3,076,240	43⅞	—20½
Pan American West. B.	277,800	396,800	19⅝	—16⅝
Panhandle P. & R., com.	342,700	804,810	16	+ 1½
Panhandle P. & R. pfd.	12,800	20,600	80¼	+5 ¼
Phillips Petroleum	5,838,100	4,490,600	40½	—15¼
Pierce Oil, com.	196,400	239,400	⅝	— ⅛
Pierce Oil, pfd.	23,300	28,600	19	+ 4
Pierce Petroleum	483,300	480,400	3	+ ¾
Producers & Refrs., com.	1,279,000	254,000	25	+7 ⅝
Producers & Refrs., pfd.	32,820	2,400	42½	+ 5½
Pure Oil, com.	1,865,800	755,450	25⅞	— 1⅞
Pure Oil, pfd.	7,200	9,450	112¼	.....
Richfield Oil	21,800	.....	27	.....
Royal Dutch, N. Y., sh.	155,350	258,700	47⅝	— 5⅛
Shell Transport	16,100	20,500	43⅛	— 1⅝
Shell Union Oil	683,500	1,802,900	25½	— 1½
Simms Petroleum	618,400	980,400	23⅝	+ 3⅛
Sinclair Consol. Oil, com.	2,398,600	2,570,800	20⅞	+ 1⅝
Sinclair Consol. Oil, pfd.	39,900	38,100	102½	+ 5
Skelly Oil	753,600	1,940,800	27¼	— 8
Standard Oil of Cal.	1,106,700	1,360,600	55½	— 2⅝
Standard Oil of N. J.	2,528,500	3,142,800	39¾	+ 1
Standard Oil of N. Y.	1,357,330	136,700	31⅛	— 1⅞
Sun Oil, com.	105,600	99,300	31½	.....
Sun Oil, pfd.	5,300	.....	100¼	.....
Texas Corp.	1,638,100	1,993,700	54	— 3
Superior Oil	389,100	605,300	3½	— 1⅛
Texas Pacific C. & O.	720,000	854,700	14⅛	— ⅝
Tide Water Oil, com.	84,900	483,900	22⅞	— 4⅛
Tide Water Oil, pfd.	38,300	99,900	86½	— 2⅝
Tide Water Assoc. Oil, com.	661,900	.....	17¼	.....
Transcontinental Oil	4,899,100	1,739,600	8⅝	+ 4⅛
Union Oil of Calif.	729,600	2,162,200	43⅝	—12⅝
Union Tank Car	59,000	90,945	126½	+32½
White Eagle Oil & Rfg.	92,200	200,200	20¼	— 6
BONDS				
American Republics, 6s	$ 829,000	$ 634,000	102⅝	+ 3⅜
Associated Oil, 6s	772,000	1,628,000	103	+ ⅛
Atlantic Rfg., deb., 5s	989,000	1,236,000	102½	+ 1¼
Barnsdall Corp., 6s	18,658,000	14,548,000	100	+ 1

(Continued on Page 230)

PATRICK CARBON

for Diamond Core Drilling

"Specify Patrick Carbon"

THERE is extra service in PATRICK CARBON that every diamond core drill operator is invited to enjoy. It is included without additional cost with every order for Patrick Expertly Graded Carbon.

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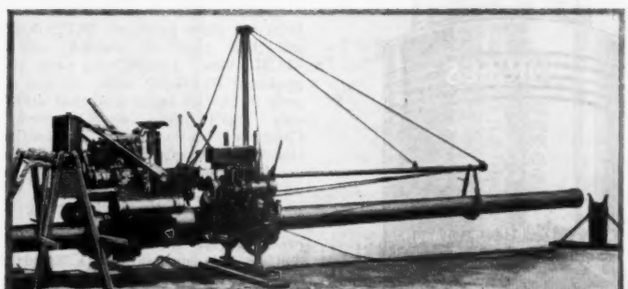
You can get in touch with our representative by wiring Duluth office

R. S. PATRICK

Duluth, Minnesota, U.S.A.

Cable Address, "Exploring" Duluth



Photograph showing 8, 10 and 12 inch machine used in the construction of many pipe lines in Texas and Oklahoma this season.

"New Four-Inch Machine Now Ready!"

One of our machines has record of laying over three miles of 8 inch pipe in one day. Another laid 8000 feet of 10 inch pipe and another laid 7000 feet of 12 inch pipe in one day's run. The work was perfect. There were no leaks or breaks in lines.

With our machine the necessary bends are made "right now." Even 10 and 12 inch pipe is BENT COLD.

Machines for laying all sizes from four to twelve inch pipe for sale or lease.

California Pipe Line Machine Company

KANSAS CITY, MO.

2710 East 14th St. J. J. Mahoney, Pres.

1000 feet
11" hole
40 hours
cost 3 cents per foot

K-P
THE LINE OF LEAST RESISTANCE

STRAIGHT-HOLE
Rotary Drilling Bit

—made this speed and low cost record. A 1000 feet of 11″ hole in 40 hours, passing another well by 100 feet that was started 5 days previously, is the record made by the Klingensmith Drilling Company at Pearson Switch, Okla., with three sets of K-P self-sharpening cutters in a K-P *Straight Hole* Bit. *This thousand feet cost Klingensmith only $30.00 for K-P self-sharpening cutters.* The total footage was made in three round trips.

Kennedye-Plumb Corp.
Railway Exchange Building
ST. LOUIS, MO.

Sold by every
"Continental" — "National" — "Oil Well" supply company branch store.

Company	Sales 1927	Sales 1926	Closing Price 1927	Year's Net Change
California Pet., deb., 5½s	3,723,000	1,154,000	100⅜	— ⅝
California Pet. 5s	2,728,000	.....	96	.....
California Pet., 6½s	332,000	2,126,000	103½	.....
Empire Gas & Fuel, 7½s	7,603,000	5,155,000	110⅜	+ 5⅝
Empire Gas & Fuel, 6½s	6,497,000	.....	105⅜	.....
Humble Oil & Ref., 5s	4,838,000	.....	100½	.....
Humble Oil & Ref., 5½s	3,246,000	2,137,000	102⅝	+ ⅜
Mid-Continent Pet., 6½s	1,268,000	1,251,000	104⅜	.....
Pan American Pet. & Tr., 6s	5,284,000	7,702,000	102⅞	— 2⅛
Pan American Pet., 7s	620,000	1,860,000	105½	+ ½
Pierce Oil, 8s	370,000	413,000	104½	+ 1
Prod. & Refs., 8s	161,000	211,000	112	+ 1
Simms Petroleum, 6s	3,282,000	5,000	107	+ 5½
Sinclair Consol. Oil, 7s	7,381,000	7,045,000	100	+ 2½
Sinclair Consol. Oil, 6s	5,632,000	18,059,000	99⅜	— ⅝
Sinclair Consol. Oil, 6½s	9,897,000	4,355,000	97⅝	+ 4⅞
Sinclair Pipe Line, 5s	4,547,000	3,262,000	94	+ 1½
Sinclair Crude Pur., 6s	3,892,000	3,496,000	100	— ⅜
Skelly Oil, 5½s	1,930,000	.....	95	.....
Standard N. J., 5s	11,409,000	2,806,000	103½	+ 1⅜
Standard of N. Y., 4½s	12,472,000	.....	97⅝	.....
Superior Oil, 7s	102,000	131,000	101⅞	+ 1⅝
Union Oil of Calif., 5s B	128,000	162,000	102	+ 1½
Union Oil of Calif., 5s C	1,208,000	1,681,000	99⅞	+ 1⅛
Union Oil of Calif., 6s A	249,000	131,000	109¼	+ 1¼

Total sales, stocks (shares): 1927, 54,925,170; 1926, 53,413,504; 1925, 56,969,259; 1924, 42,778,381.

Total sales, bonds (par value): 1927, $115,997,000; 1926, $95,599,000; 1925, $96,698,000.

CRUDE PRODUCTION WAS 903,850,687 BBLS. IN 1927

(Continued from Page 101)

not make a major pool before midsummer. The future of Kansas appears at this time to lie in the far western counties. There is a feeling prevalent in some oil circles that the Big Lime that underlies West Texas is present also in Western Kansas and that it may develop oil pools of importance. There is also the chance of the Dakota sand proving productive, although it is regarded as a water sand with only a few known spots that contain oil, as in the Salt Creek Field in Wyoming. The southern tier of counties in Kansas have been explored sporadically for the past 12 years with the result that several pools were found in Cowley County and other pools in Sumner County. Operators are now looking to Harper and Barber Counties farther west. One of the surprising developments in Kansas last year was the discovery of another shoestring pay sand in Miami County where the first well in Kansas was drilled a half century or more ago. Miami County has been extensively prospected yet this good little pool was overlooked until a few months ago.

Arkansas fell off greatly last year. In 1926 the state produced 58,729,606 bbls. and last year it yielded only 40,411,375 bbls. In 1925 its peak year it produced 78,407,138 bbls. It was a dull year in the oil regions of that state and only small pools were opened, the Champagnolle Pool being the most important of the year's discoveries. The state at this time offers nothing in the way of future big production.

Louisiana Passes Wyoming

Louisiana passed Wyoming as an oil producing state with a production of 24,330,954 bbls. as against 24,283,144 bbls. in 1926. Last year's production was the largest the State has recorded since 1923. The State continued its excellent record as a gas producer.

Wyoming showed a severe decline in crude output with 20,983,675 bbls. as against 25,465,553 bbls. the previous year. In 1923 the State produced 42,386,704 bbls. Wyoming's showing last year was no criterion of its true oil productivity. It is estimated that a production of 100,000 bbls. a day is shut in in the deep sands of the Salt Creek Field. The shut-in crude—whatever its volume may prove to be when the wells are opened up commercially—is available at any time and on some occasions last year the deep sands were permitted to produce when there was a call for the oil.

Colorado just about held its own in the matter of oil production last year, but Montana fell off from 7,744,605 bbls. in 1926 to 5,171,883 bbls. in 1927. New Mexico also showed a decline in output.

Successful Modern Methods

The splendid results of the water drive on the Richburg and Bradford sands in the Allegany, N. Y., and Bradford, Pa., fields is shown in the steady increase in the production of those fields. In New York State, where practically all the production comes from, the Bradford and Richburg sands, 2,237,000 bbls. were produced last year. Four years previously the State produced 1,250,100 bbls. This indicates an increase of about 79 per cent in four years in a field which normally would have shown a steady decline. No new territory has been developed there. Operators in the field are merely drilling up the already known oil acreage and restoring the lost gas pressure by means of water and, in a few instances, compressed air. One property in the Richburg, N. Y., Field which produced about 3,500 bbls. to the acre in about 40 years and which was then "flooded," produced over 13,000 bbls. per acre in the next three years. Under the stimulus of the water drive the production of oil in New York State has shown an increase from 1923 to 1927, both inclusive, as follows: In 1923, 1,250,100 bbls.; 1924, 1,482,000 bbls.; 1925, 1,660,000 bbls.; 1926, 1,934,000 bbls.; 1927, 2,237,000 bbls. The production of Pennsylvania has increased from 7,276,850 bbls. in 1923 to 9,642,000 bbls. in 1927 and most of this increase has come from the Bradford Field, where the water drive or "flood" had its origin. That the use of the water drive has not been general in Pennsylvania may be accounted for by the fact that the "flood" is peculiarly adapted to sands of the intense fineness of grain, close cementing and hardness of the Bradford and the Richburg sands. These sands are so hard that they held the greater part of their oil content in suspension. The rock pressure, which would have been sufficient as a propelling force in sands of usual texture, was inadequate in these sands. The steady high pressure of the water is forcing out a great volume of crude otherwise unrecoverable except by actual mining operations.

Ohio, West Virginia, Indiana, Tennessee and Michigan all showed some gain over the previous year, but the Illinois fields, which in 1923 were the largest producers of oil east of the Mississippi River, continued their slow but steady decline until they now rank below Pennsylvania and Ohio.

In the matter of average daily production per well, California easily leads all producing divisions with an average of 56.02 bbls. Texas' 27,726 oil wells averaged 21.74 bbls. a day, while the 61,578 wells in Oklahoma averaged 12.28 bbls. per well per day. Kansas wells showed a 5.89-bbl. average and those of Arkansas 23.62 bbls. The 185,373 wells in the fields east of the Mississippi River averaged less than three-fifths of a barrel (.59 bbl.) per day per well, the lowest average being in Pennsylvania, the cradle of the industry, where the 78,000 wells averaged a shade over one-third of a barrel (.34 bbl.) per day.

DEDUCTIONS FOR DEPLETION

WASHINGTON, D. C., Feb. 4. — The Bureau of Internal Revenue has ruled that deductions for depletion are not precluded when they were charged as expenses. This was a case in which the taxpayer elected to charge off as expenses for 1925 and subsequent taxable years items specified in Article 223, Regulations 69, and it was decided that that action would not preclude him from claiming as depletion and depreciation deductions for 1925 on any subsequent taxable years.

Prevents Crooked Holes—

The PREVENTION of crooked hole, rather than the correction of this evil, is the new purpose in drilling; made possible by the Nebergall Spiral Stem, the most practical and economical drilling stem in history.

The Spiral Stem *fills* the hole, guides the bit and FORCES it to cut straight through all obstructions.

1. Prevents sucker rods from cutting tubing.
2. Mixes mud.
3. Prevents mud-rings.
4. Cleans path for bailer.
5. Reduces whipping.
6. Guards against caving.
7. Simplifies fishing jobs.
8. Protects casing shoe.
9. Protects casing from line cutting.
10. Perfects under-reaming.
11. Strengthens walls.
12. Lessens breakage of jars.
13. Forged steel—last practically forever.

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THE CONTINENTAL SUPPLY COMPANY
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THE CONTINENTAL WELL SUPPLY CO.
72-76 Trinity Court, New York

SPIRAL STEM

You can't go wrong with a Tiger Tool

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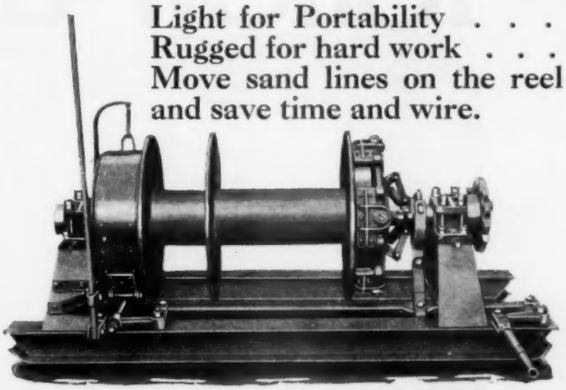

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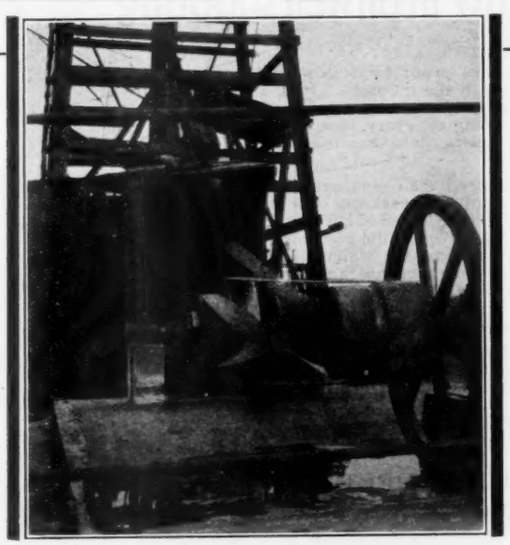

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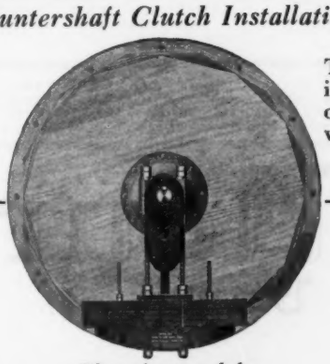

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Zero Hour
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CANADIAN FIELDS

(Continued from Page 69)

drill for drilling into the deep limestone. At this depth the test is in the top of the limestone. Dalhousie No. 6, LSD 10, Section 13-20-3w5, has resumed drilling at 4,517 feet.

Moose Mountain

In the Moose Mountain district, Signal Hill Oil Co.'s No. 2, LSD 9, Section 34-23-5w5, is at 1,782 feet and drilling, with slight traces of oil in a very hard formation.

Wainwright Field

In the Wainwright Field, new development work is forecasted by the reported proposition of a Vancouver syndicate to resume work on the leases of British Petroleums, Ltd. The Vancouver interests are forming a company which will take over 40 acres in the Turner Valley Field near the Home Oil Co.'s No. 1 well, and 10,000 acres in the Wainwright Field. It is understood that if the proposition is accepted by the British Petroleums, Ltd., shareholders, one test will be drilled in the Turner Valley Field and one in the Wainwright Field on the B. P. acreage.

GULF COAST FIELDS

(Continued from Page 66)

has been completed pumping 8 bbls. from sand at 1,010 feet. Paraffine Oil Co.'s No. 71 Paraffine set strainer at 415 feet to test sand there and as the week closed was bailing.

At Saratoga, Gulf Production Co.'s No. 13 Tabor has been completed pumping 40 bbls. of fluid, of which only 20 per cent is oil. This is from sand at 1,780 feet.

Humphreys Corp.'s No. 1-G Bashara, at Sour Lake, tested salt water at 4,090 feet. Elberts, Tallourne & Hebert's No. 3 Jackson has a sand around 2,900 feet where strainer has been set for a test. Gulf Production Co.'s No. 3 Thompson is drilling at 3,316 feet. Gulf also has a rig up for No. 1 Hamman. Five miles northwest of the Sour Lake Field, Chappell Hill Oil Co. has staked a location for No. 1 Hale.

Hull—Liberty County

W. F. Flynn has a well pumping 30 bbls. of net oil in No. 1 Ray, completed at a depth of 2,090 feet. The well is making a total of about 200 bbls. of fluid. Empire Gas & Fuel Co. also has set strainer for a test of sand at 3,125 feet in No. 26 Barngrover. Gulf Production Co.'s No. 83 Phoenix is drilling at 3,581 feet, No. 88 at 1,770 feet and No. 89 at 1,940 feet. Mecom Oil Co. has set strainer in No. 4 Taylor at 4,030 feet and will put the well on the pump. Republic Production Co.'s No. 41 Dolbear is drilling at 1,675 feet and No. 94 at 2,550 feet. The Texas Company and Vacuum Oil Co.'s joint No. 7 Hannah is down 4,696 feet.

North Dayton—Liberty County

Deering & Kayser's No. 1 Pruett, at North Dayton, has been abandoned at 2,630 feet.

Liberty—Liberty County

Navarro Oil Co.'s No. 3 Harrison is pumping salt water from sand at 3,375 feet. In the new north extension, The Texas Company has staked a location for another test, No. 1 Staiti. Yount Lee Oil Co. has a rig up for its No. 2 Mitchell, and Sun Oil Co. 1 for its No. 1 Mitchell. The Texas Company's No. 1 Green, 1½ miles north of production, has started drilling and is down 625 feet.

High Island—Galveston County

McLean Oil Co. has worked over and completed its No. 11 Cade, good for 50 bbls. on the pump from sand at 3,375 feet. McLean's No. 10 Cade has been shut down at 4,375 feet. No. 6-C Cade is being drilled deeper at 2,500 feet after failure to make a well at 2,300 feet. Gulf Production Co. is pulling liner to deepen No. 6 Smith, while its No. 2 Smith is drilling at 4,735 feet.

Orange—Orange County

Gulf Production Co. has put its No. 7 Hager & Moore on the pump for 124 bbls. daily at a total depth of 3,352 feet. This company's No. 21 Lee Hager fee is drilling at 4,350 feet, and a rig is up to deepen No. 6 Chessom. Sun Oil Co.'s No. 2 Brown is drilling at 5,190 feet.

Miscellaneous Texas

Humble Oil & Refining Co. got its first good well at Raccoon Bend during the week when it completed No. 2 Gotosky flowing at the rate of approximately 500 bbls. daily of 21 gravity pipe line oil from sand at 3,274-82 feet. Humble now has another test at Raccoon Bend, No. 1 Wilson, which is drilling hard sand at 1,117 feet.

Alexander & Lyle's No. 1 Gobel, Austin County, has completed a fishing job at 2,580 feet and is drilling deeper. Weadock and associates' No. 1 Ward is drilling at 735 feet.

On the Allen Dome, Brazoria County, Roxana Petroleum Corp.'s No. 1 Random blew out during the week while drilling at 4,931 feet. The pressure caved the hole and it is doubtful whether the hole can be saved. No estimate was made of the volume. This company's No. 4 Allen, which blew in the previous week making an estimated 50,000,000 feet of gas daily, stopped flowing after a few days and now efforts are being made to bring the well back in. Saturday it was rigged up to bail. Pressure of that well was approximately 500 pounds. Roxana's No. 1 Allen Bernard is to be put on the pump after more than a month of intermittent bailing in an attempt to make the well flow. The latter's production is from a total depth of 5,337 feet.

On the Clemens Dome, Brazoria County, Roxana's No. 2 Bell is drilling blue shale and lime at 5,718 feet.

Rucks and associates' No. 2 Muldoon, in the "Slop Bowl" district, Brazoria County, has spudded in and is down 675 feet. Stanfield & Meyers' No. 1 McNeill, also in Brazoria County, has spudded in.

Barbers Hill

At Barbers Hill, Chambers County, S. T. Hindman and associates have abandoned No. 1 Fisher. It has been shut down several months in shale at 4,690 feet. Bennett Petroleum Co.'s No. 8 fee, an old well being deepened, is drilling at 4,822 feet. R. L. Bartlett's No. 1 Fisher is in sandy shale at 2,053 feet.

Pure Oil Co.'s No. 1 Lost River, at Lost Lake, Chambers County, is drilling gummy shale at 3,430 feet. According to calculations from geophysical tests, this test should be nearing the dome production, if any. Pure has five other tests ready to start drilling but these probably will wait pending developments in the No. 1 Lost River.

B. A. Johnson's No. 1 Breeding, Colorado County, is drilling below 840 feet. In the same county, Carl Milentz (F. E. Waldrop) is drilling around 600 feet in No. 1 Auerbach, and Rich Oil Corp. around 1,000 feet in No. 1 Von Rosenburg fee. Waldvogel and associates have a location for No. 1 Tanner, 250 varas from the north line and 600 varas from the west line of the F. L. Toneray Survey.

At Moore's Field (Orchard), Fort Bend County, Gulf Production Co.'s No. 15 Moore is drilling at 622 feet. On the DeWalt Dome, in the same county, Humble Oil & Refining Co.'s No. 1 Sugarland Industries is drilling around 2,194 feet.

At Hockley, Harris County, Humble Oil & Refining Co.'s No. 1 Tex-Ex.-Warren has been spudded in and Saturday was 32 feet in rock. No. 2 Warren, on the same dome, is drilling shale at 4,132 feet.

Hunt and associates' No. 1 Adorie-Lobit, Harris County wildcat, is being washed to the bottom at 880 feet, as is Jaunita Oil Co.'s No. 1 Kitsman at Cypress, Harris County. The latter has been shut down at 1,175 feet for several months.

Oscar Head is changing rigs at No. 1 Boykin, Jasper County, preparatory to resuming drilling. The hole is at a depth of 680 feet. Tar Well Oil Co.'s No. 1 Nona Mills, Jasper County, is drilling below 560 feet.

Big Hill

At Big Hill, Jefferson County, Freeport Sulphur Co. has abandoned two sulphur tests, Nos. 6 and 8 Staiti, the former at 1,152 feet and the latter at 500 feet. A location has been staked for No. 9 Staiti.

Eleven miles northwest of the Spindletop Field, Jefferson County, and just south of the town of Voff, A. M. Dean and associates have a location for No. 1 Mashman, 300 feet west of the highway and 155 feet south of the north line of the 13-acre tract.

James McMurry and associates' No. 2 Crosby, 5 miles northeast of Port Arthur, is drilling at 2,085 feet. Port Arthur Oil & Gas Co.'s No. 4 West is drilling at 3,345 feet.

Union Sulphur Co.'s No. 1 Wynn Buchana, Tyler County, is drilling at 1,600 feet.

SOUTH LOUISIANA

Jennings—Acadia Parish

The Texas Company has abandoned its No. 2 Rayne heirs, Section 40-9s-2w, on the south edge of the Jennings Field. The well was dry at 4,610 feet. The Texas Company's No. 4-B Latrielle, Section 47, is drilling at 1,900 feet. Cline, Smith & Cline has set strainer in their No. 2 Wilson and will test a sand around 1,600 feet. Yount Lee Oil Co.'s No. 2 Latrielle, Section 47-9s-2w, is drilling sand and gravel at 825 feet.

Edgerly—Calcasieu Parish

Wilson-Broach's No. 6 Wilson is drilling below 3,750 feet after encountering salt water at 3,650 feet. Rex Petroleum Co. has set strainer in No. 8 Hunter, Section 21-9s-11w, and will test a sand around 3,400 feet. Green Oil Co. also will make a test in No. 9 Moore, Section 28, having set strainer at 3,157 feet.

Lockport—Calcasieu Parish

Vacuum Oil Co. and Gulf Refining Co. have cemented successfully the cavity in No. 3 Farquahar at 4,400 feet and are preparing to resume drilling. Preparations also are being made to resume drilling in No. 5 Farquahar, which has been shut down. This hole is down 5,667 feet. No. 4 State, in Bayou D'Inde, is drilling water sand at 4,600 feet, and No. 1-A fee is in hard sand at 5,191 feet. These operators also have completed a derrick for No. 6 Bordages and are building one for No. 1 State in Calcasieu River. The right of way is being cleared for No. 5 Lock-Moore and work will begin soon on building a derrick.

Vinton—Calcasieu Parish

Edgerly Petroleum Co.'s No. 11 Vincent is drilling below 3,590 feet. Gulf Refining Co.'s No. 44 Star-Vincent is drilling at 2,472 feet. Marrs McLean's No. 1 G. & N. G. is drilling at 2,075 feet, and Seiss Oil Corp.'s No. 5 Green is down 2,115 feet. Vinton Petroleum Co.'s No. 9 Gordon is to be placed on the pump after failure to make a flowing well at 3,060 feet. This company's No. 61 Gray is drilling at 2,175 feet.

Miscellaneous Louisiana

At Starks Dome, Calcasieu Parish, Gulf Refining Co.'s No. 8 Lutcher-Moore is drilling at 3,004 feet. At Sulphur, also Calcasieu Parish, Union Sulphur Co. has abandoned No. 719 fee at 3,619 feet. Efforts to make this test a well have been unsuccessful. The well tested salt water with a little oil at 3,610 feet.

Newton Drilling Co.'s No. 1 Dupre, a wildcat between Lockport Field and Lake Charles, is drilling gumbo at 3,150 feet. At Sweet Lake, Cameron Parish, Pure Oil Co.'s No. 4 Sweet Lake is drilling around 5,850 feet. Evangeline Oil Co.'s No. 1 Ducide Guillery, Pine Prairie Dome, Evangeline Parish, is drilling around 2,460 feet, resuming operations after being shut down several weeks. Roxana Petroleum Corp.'s No. 1 Wilbert, White Castle, Iberville Parish, is coring sandy, blue shale at 1,632 feet.

LOUISIANA-ARKANSAS

(Continued from Page 62)

at 2,218 feet. Jordan Drilling Co. has begun drilling No. 2 McGee, Section 10-18-4. Moody & Seagraves' No. 1 United States Government, 660 feet north and east of SW cor., Section 1-19-3, is on a rock at 1,580 feet. Natural Gas & Fuel Corp. has location 660 feet north and 1,400 feet east, SW cor., Section 21-19-4, for No. 1 McEnery and is rigging up. Ouachita Natural Gas Co. set 8-inch casing at 218 feet in No. 8 Smith, Section 37-19-4, and is drilling at 955 feet. Palmer Corp. began drilling No. 2 Central Real Estate in Section 1-19-4, January 28, and has 12-inch surface casing set at 158 feet. Peerless Carbon Co.'s No. 3 Moore, Section 49-20-4, set 8-inch casing at 811 feet and is drilling at 2,195 feet. Southern Carbon Co.'s No. 3 Phillips, Section 8-19-4, is drilling at 2,055 feet. United Carbon Co. is rigging up on second hole for No. 2 Nelson fee, Section 6-19-5, 30 feet south of the first hole, junked at 2,105 feet.

Union Parish—Natural Gas & Producing Co. is drilling No. 1 Waldrop, Section 7-21-3e, at 1,965 feet. John Potts' No. 1 Bernstein, Section 30-20-4, is drilling at 1,750 feet. Ruston Drilling Co. has begun drilling No. 1 Steele, Section 36-20-3.

Red River Parish

J. H. Askew's No. 3 Richardson, Section 25-13-11, is drilling at 2,547 feet. Hazlett & Simmons are drilling No. 2 Neeley, Section 1-14-12, at 1,250 feet.

Richland Parish

Gulf Refining Co.'s No. 3 Rhymes, Section 28-17-6, set 12½-inch surface casing at 916 feet and is drilling at 1,125 feet. Moody & Seagraves' No. 1-C Hemler, Section 29-16-6, is drilling at 2,457 feet; No. 1 LaFleur, Section 18-16-6, cemented 6-inch pipe at 2,306 feet. Natural Gas & Fuel Corp.'s No. 1 Sartor-Phillips, Section 9-16-6, is drilling at 2,440 feet. Oliver & Master's No. 2 Hatch, Section 2-15-5, has set 12½-inch surface casing at 793 feet. Ruston Drilling Co. cemented 6-inch casing at 2,285 feet on No. 1 Sartor, Section 17-16-6. Southern Carbon Co. cemented 8-inch casing at 875 feet on No. 2 Sartor, Section 26-16-6, and is drilling at 925 feet; No. 1 Spann, Section 20-16-6, set 12½-inch casing at 192 feet and is drilling at 675 feet. United Carbon Co.'s No. 1 Mulhern, Section 20-16-6, is drilling at 2,100 feet.

Sabine Parish

Ruffin and others' No. 1 McElroy in Section 33-10-12, began drilling January 25, set 10-inch surface string at 100 feet and is drilling at 1,000 feet.

Webster Parish

Cotton Valley—Humble Oil & Refining Co. is drilling anhydrite at 4,414 feet in No. 5 J. Babb, Section 14-21-10, and is in the same formation at 4,495 feet with No. 1 Gray, Section 26-21-10. Magnolia Petroleum Co.'s No. 1 Cole, Section 27-21-10, is drilling anhydrite at 4,260 feet.; No. 1 D. G. Cox, Section 22-21-10, is drilling hard lime at 3,965 feet; No. 1 Mixon, Section 22-21-10, is in lime at 2,792 feet. Ohio Oil Co. is drilling shale at 3,573 feet in No. 38 Bodcaw, Section 15-21-10, and No. 2 Crichton, Section 21-21-10, cemented 8⅝-inch casing at 3,390 feet. J. K. Wadley began drilling January 27, set 10-inch casing at 300 feet and is drilling at 800 feet on No. 1 Sexton in Section 36-21-10. Woodley Petroleum Co. is cementing back to cut off salt water that showed up with 3,000,000 feet of gas and about 50 bbls. of 48 gravity crude at 4,737 feet in No. 1-B Cox, Section 23-21-10.

Sarepta and Shongaloo—Arkansas Natural Gas Co. has cemented 6-inch casing at 2,660 feet in No. 1 North Central Texas, Section 36-23-10. Magnolia Petroleum Co. has derrick up for No. 1 Viola Mitchell in Section 31-23-9; No. 1 H. L. Munn, Section 29-23-9, is arranging to test at 2,700 feet; No. 1 J. L. Munn, Section 36-23-10, cemented 6⅝-inch casing at 2,654 feet and No. 1 R. J. Munn, Section 29-23-9, began drilling January 28 and is shut down at 400 feet waiting to set surface casing. Harry Morris has rig up on No. 1 Lewis, Section 15-23-9.

ARKANSAS

Union County

Champagnolle—E. M. Jones' No. 3 Crain, Section 2-17-14, is shut down at 3,670 feet and No. 4 which is standing with 2,000 feet of fluid 50 per cent salt water in the hole, total depth 3,067 feet, is being put on the air. Magna Production Co. is coring sandy shale at 2,743 feet in No. 1 Rowland, Section 14-17-14. Oilwell Corp. cemented 6⅝-inch casing at 3,057 feet (corrected depth) for a test of 4 feet of sand 3,065-69 feet in No. 1 Dumas, Section 11-17-14; No. 1 Townsend, Section 10-17-14, tested 5,000,000 feet of gas and 200 bbls. salt water in 6 feet of sand 2,740-46 feet which is be-

ing mudded off to deepen. Pure Oil Co. began drilling No. 1 Gregory in Section 10-17-14, January 28, and has 12½-inch surface casing set at 183 feet. Alfred Rovenger is rigging up to drill No. 1 Perdue, Section 10-17-14. Rushing and others are drilling No. 1 Gregory, Section 11-17-14, at 2,240 feet and No. 2 has set 10-inch surface casing at 150 feet and is shut down waiting orders. Simmerall and others began drilling No. I Finley in Section 12-17-14, January 28, and have 12½-inch casing set at 212 feet.

El Dorado—C. H. Allison found he had a split casing at 2,150 feet in testing No. 10 Fitzgerald, Section 17-18-15, and is cleaning out the hole, total depth 2,175 feet. Morefield and others have cemented 6⅝-inch casing at 2,212 feet in No. 1 Hill, Section 7-18-14 (East Field) total depth 2,224 feet.

Smackover—Lion Oil Refining Co.'s No. 1 Leverett, Section 11-16-16, is drilling at 2,475 feet; No. 7-D Murphy, Section 8-16-15, perforated casing at 2,658 feet and is waiting on standard rig to pump with 500 feet of fluid standing in the hole.

EAST TEXAS

Harrison County

Cox and others are bailing No. 1 Furrh, in the James Short Survey, for a test at 1,020 feet. Lide and others' No. 1 Abercrombie in the R. W. Bedford Survey is drilling at 1,500 feet. Magnolia Petroleum Co. is reaming No. 1 A. G. Vincent in the R. W. Bedford Survey at 1,911 feet. C. H. Lyons and others' No. 2 Furrh, New State Line Oil & Gas Co.'s No. 4 Abney, in the James Short Survey, set 10-inch casing at 80 feet and is drilling at 750 feet. State Line Oil & Gas Co.'s No. 6 Waterman in the E. Pollock Survey, is drilling lime at 2,543 feet. Tylong Oil & Gas Co. is drilling No. 1 Armstrong in the Simpson Holloway Survey at 650 feet; No. 3 Vaughn in the W. R. Anderson Survey, set 10-inch casing at 44 feet and 6-inch at 942 feet.

Panola County

S. H. Gardner and others are drilling No. 3 Roquemore in the B. C. Jordan Survey at 850 feet. Magnolia Petroleum Co. has rig up to drill No. 3 Ella Baker in the B. C. Jordan Survey; No. 1 E. C. Tillery in the Jane Thorpe Survey, set 8¼-inch casing at 1,018 feet; No. 1 Leight Trosper in the B. Stevenson Survey, is drilling cap rock at 1,206 feet. The Texas Company's No. 7-B Adams in the Isom Hatcher Survey, is drilling at 1,000 feet and D. Thomason's No. 3 Crenshaw in the John Womack Survey has set 10-inch surface casing at 100 feet and is drilling at 650 feet.

LA.-ARK. WILDCATS

(Continued from Page 62)

south of the Haynesville Pool in Claiborne Parish, N. 1. C. C. Lee in Section 16-22-8, which was drilled to 5,100 feet. After leaving the known horizons which were productive in other areas it made a drill stem test at 3,695 feet and got salt water and was shut down for orders at 4,090 feet after the hole filled up with water. Most of the drilling since leaving the known horizons was through lime with occasional streaks of shale.

Two more north Louisiana wildcats also were abandoned, W. Ball and others testing dry at 2,106 feet on No. 1 Calhoun, Section 4-7-4, Grant Parish, which had been shut down at that depth since December 21, and George W. Sabatier abandoned location for No. 2 Richey, Section 38-5-4, Rapides Parish, without drilling.

Sunny Jim Oil Co. junked No. 1-A Runyon in Section 3-16-21, and abandoned the hole at 3,110 feet. They took it over December 1 after Big Creek Oil Co. had left it temporarily abandoned at 800 feet for some time. Pitcher and others' No. 1 Kinard in Section 17-15-19, Union County, a mile east of Stephens production, at 3,057 feet, where it was dry after testing salt water at 2,505 feet.

Sebastian and others' No. 1 Pickering Lumber Co., on the T. F. Polley Survey in Shelby County, Texas, has been abandoned at 2,923 feet.

Mississippi Activities

Attention was directed to Mississippi early in the week by reports of the appearance of rainbows on the pit of The Texas Company's and Trancontinental Oil Co.'s No. 1 Day, Section 18-16-18, Monroe County, the showing coming from 8 feet of a coarse sand at 2,242-50 feet. The hole was being kept full of water while drilling with cable tools and when bailer was run to the bottom it brought up a trace of oil and enough salt water to give the fluid a slightly brackish taste. There being insufficient salt water to tincture the whole body of fluid in the hole is accepted as an encouraging symptom along with the rainbows and 8½-inch casing will be set for a test.

Natural Gas & Fuel Corp.'s No. 1 Rye in Section 22-15-17, Monroe County, which has been making 3,000,000 to 4,000,000 feet of gas with salt water, is said to have shown a small amount of high-gravity oil during the last few days. Accumulated gas pressure causes the well to make a head every few hours and the oil, said to resemble gasoline, has been noticed after each of these heads. What will be done to follow up the reported show is not known at present. It is stated, however, that Amory Petroleum Co. is arranging to drill another well near the discovery gasser of a year or more ago, No. 1 Carter, in Section 7-13-17, probably 1,000 feet north of the Carter. Rig will be moved from No. 1 Dill, Section 12-13-18, which is temporarily abandoned after a salt water test at 2,437-63 feet. The company's No. 3 Hall, Section 8-13-17, is reaming preparatory to trying to fish three joints of casing lost in the hole, total depth 2,370 feet. A. M. Sutton has cemented 8-inch casing at 587 feet to cut off a water flow in No. 1 Matthews, Section 14-2-7, Alcorn County, and is arranging to kill an artesian flow at 674 feet and rig up with cable tools to deepen No. 1 Acker in Section 25-13-19, Monroe County.

NORTH LOUISIANA

Bienville Parish

S. P. Borden and others are down 500 feet with their No. 2 L. & A. in Section 1-15-8. Edwin J. Forrest's No. 1 Perritt in Section 11-17-6, which has been held up waiting for additional joints of drill stem, has resumed drilling and is in sandy lime at 2,980 feet.

Bossier Parish

Doern and others' No. 1 Bollinger in Section 9-22-11, is drilling at 3,645 feet. H. S. Goodwin's No. 2 Curtis, Section 36-17-13, is drilling at 1,102 feet. Hamiter and others' No. 1 Hamiter in Section 10-23-13, west of Plain Dealing, is drilling at 1,870 feet.

Caddo Parish

Greenwood Production Co.'s No. 1 Cooper & Ellerbe in Section 15-18-14, 4 miles north of Shreveport, is reaming to bottom, total depth 3,138 feet. Tubbs and others' No. 1 Hines in Section 9-14-16, has reached 2,540 feet with the bottom in gumbo.

Claiborne Parish

Rudeseale and others are in lime at 2,833 feet with No. 1 Meadows in Section 20-21-7, deepening the hole after a prior abandonment at 2,700 feet.

Catahoula Parish

Lochnager Oil & Gas Co. began drilling No. 3 Beasley in Section 26-9-6, January 26, set 12-inch surface casing at 120 feet and is drilling at 555 feet. Standard Oil Co.'s No. 1 Tensas Delta, second hole, Section 23-8-5, is in gumbo at 1,374 feet.

DeSoto Parish

American Controlled Oil Co.'s No. 1 Lanier, in Section 7-11, depened after completion last November as a 40-bbl. pumper at 2,735 feet, is standing 400 feet in oil and fishing for cable tools, total depth 2,745 feet; No. 2, in Section 5-11-11, is shut down changing to rotary tools, total depth 2,790 feet, after passing up 3 feet of sand 2,758-61 feet. Baca Drilling Co. is in shale at 2,000 feet with No. 1 Stevens, Section 12-11-16. Benson Oil Co.'s No. 2 Wolff, Section 3-10-13, is again shut down for boiler water, total depth 562 feet. Dixie Oil Co.'s No. 1 Jenkins in Section 9-12-11, has run into a streak of shale at 6,028 feet after being in lime with occasional streaks of shale for the last 4,000 feet. Foster and others are coring at 3,078 feet in No. 1 Johnson, Section 7-10-13. Reliance Drilling Co. tested dry at 3,018 feet in No. 1 Jones, Section 8-11-14, and have shut down waiting orders.

Franklin Parish

Louisiana Petroleum Co. got a show of gas at 2,503 feet in No. 1 Tensas, Section 11-11-6, which has been shut down since early in December and are cleaning out the hole preparatory to testing.

Grant Parish

W. D. Ball and others have gone back to No. 1 Elias Williams in Section 10-7-4, formerly reported dry and abandoned at 2,104 feet and are cleaning it out preparatory to going deeper. Swope and others' No. 5 fee in Section 18-9-7e, which rigged up last week after standing as a derrick since last September, began drilling January 31, and has set 10-inch casing at 101 feet.

Natchitoches Parish

Lawson & Pharis' No. 1 Crowell, Section 22-5-6, is drilling at 2,215 feet.

Rapides Parish

Minnesota Oil Co. has made location, rigged up and begun drilling No. 2 Wettermark, 180 feet south and 450 feet west NE cor., Section 13-5-4, but shut down after making 50 feet of hole.

Richland Parish

Gulf Refining Co.'s No. 1 Millsaps, Section 8-17-6, is coring shale and sand at 2,592 feet; No. 1 Ches Wymond, Section 20-18-6, is on a rock at 2,190 feet. Moody & Seagraves' No. 1 Hatch, Section 34-16-5, is drilling sandy shale at 2,440 feet; No. 1 McDonald in Section 9-15-5, is drilling at 2,080 feet, and No. 1 Osborn, Section 14-15-5, is in a rock at 2,501 feet. Noe & Meredith are drilling at 926 feet on No. 1 Boughton, Section 4-15-6. Ouachita Natural Gas Co.'s No. 1 Cummings in Section 24-17-5, is drilling at 2,194 feet. Palmer Corp.'s No. 2 Wayne Land & Timber Co., Section 23-16-5, is plugging back to 2,475 feet to make another test, total depth 2,525 feet.

Sabine Parish

Dixie Oil Co. got a show of oil at 3,285 feet in No. 1 Steinfelt, Section 20-10-12, but not enough to warrant a test and the hole will be deepened. L. M. Emlet's No. 7 Bowman-Hicks, in Section 14-7-14, was scheduled to make a test of broken sand from 3,785-3,822 feet but lost the testing tool and has a fishing job; No. 1 Mansfield Lumber Co., in Section 15-7-14, second hole, was junked at 1,250 feet and derrick is being skidded to start the third. The first hole was lost at 515 feet and the derrick skidded 30 feet south.

West Carroll Parish

Palmer Corp. is arranging to plug back to 2,445 feet in No. 1 White, Section 2-19-10. Total depth is 2,849 feet but there have been no showings of any sort since a show of gas in 16 feet of sand at 2,450-66 feet on the strength of which 6-inch was cemented at 2,418 feet, the resulting test being salt water.

Winn Parish

Ohio Oil Co. cemented 8⅝-inch casing at 3,881 feet in No. 2 Rolen, Account 1, Section 5-12-1w, and H. M. Roark is arranging to set 6⅝-inch casing at 935 feet in No. 3 Southern Minerals Co., in Section 19-11-3w, which resumed drilling last week and made 200 feet through limestone.

ARKANSAS

Bradley County

Johnson & Adams tested dry with no show of oil or gas at 2,226 feet in No. 1 Southern Lumber Co., Section 12-12-12, drilled to 2,300 feet and are shut down in gumbo.

Clark County

McKenzie Oil Co. skidded derrick 50 feet north from the first hole on No. 1 Eakin, Section 9-11-19, which got a fresh water flow at 645 feet, and are rigging up to start second hole.

Lafayette County

Kensaw Syndicate's No. 1 Kensaw, Section 31-19-24, is drilling lime at 3,590 feet.

Miller County

Bruton and others are rigged up ready to drill No. 1 Red River Farms in Section 2-17-26, and Lenz and others have rig up for No. 3 Dale, Section 22-15-26.

Union County

W. R. Keever's No. 5 Ezell, Section 12-17-15, is waiting on standard rig to pump with 600 feet of fluid from 4 feet of sand standing in the hole, total depth 2,170 feet; No. 1 Kavanaugh, in the same section, began drilling January 21, set 10-inch surface casing at 80 feet and is drilling at 1,200 feet. Pitcher and others' No. 1 Arkansas Timber Co., in Section 21-17-11, is drilling at 2,705 feet. L. M. Vaughan's No. 2 Ezell, Section 12-17-15, began drilling January 10, and is standing with 10-inch surface casing set at 105 feet.

EAST TEXAS

Cass County

Hickman and others' No. 1 Mott, in the Ambrose Douthitt Survey, is shut down with 12-inch surface casing set at 200 feet.

Shelby County

Magnolia Petroleum Co. is arranging to test No. 1 Pickering in the T. F. Polley Survey, at 3,711 feet.

MISSISSIPPI

Alcorn Petroleum Co.'s No. 1 Matthews, Section 14-2-7, has cemented 8-inch casing at 587 feet to cut off a water flow before rigging up with cable tools to go deeper.

Jeff Davis County

Cherokee Petroleum Co.'s No. 1 Burkett, Section 14-6-18, is arranging to test at around 3,140 feet.

Monroe County

A. M. Sutton is arranging to set a string of pipe to cut off a heavy artesian flow at 674 feet in No. 1 Acker, Section 25-13-19, preparatory to rigging up with cable tools and going deeper. The Texas Company and Transcontinental Oil Co.'s No. 1 Day, Section 18-16-18, got a slight show of oil at 2,242-50 feet and is arranging to set a string of 8¼-inch casing for a test.

SOUTHWEST TEXAS

(Continued from Page 64)

feet to south and west lines, is drilling at below 600 feet; No. 6 Kleberg, Lot 1, Section 40, located 450 feet to north line and 150 feet to east line of lot, is rigging up. Houston Oil Co.'s No. A-2 Kissman, Section 41, Lot 10, located 500 feet to north and west lines, is to spud in soon.

Adams Gas Field—Medina

Southern Gas-Witherspoon Oil Co.'s No. 8 Nixon, located 1,460 feet east of No. 1 and 590 feet to north line, is erecting derrick for rotary tools at 130 feet. Witherspoon Oil Co.'s No. 2 Nixon (Tidal lease) Survey 63, located 590 feet to east line and 850 feet to north line, is drilling at 500 feet.

Saxet Field—Nueces

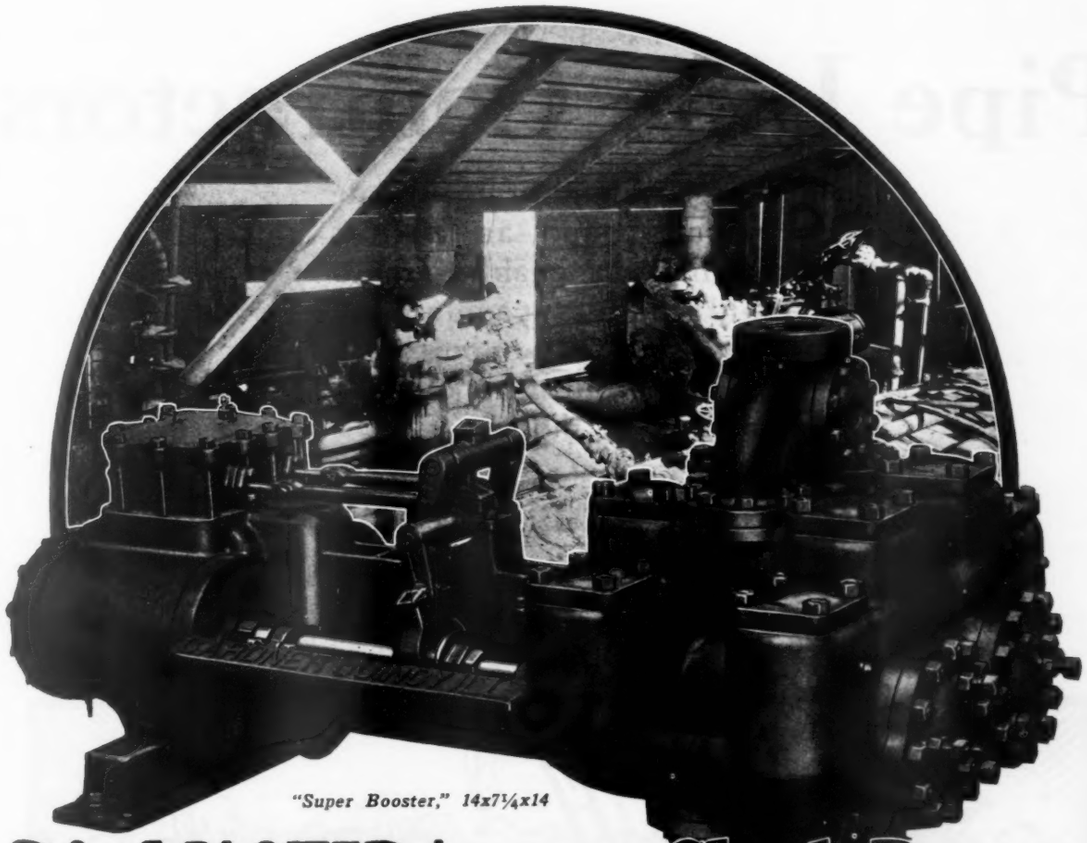
Alamo Drilling & Leasing Co.'s No. 1 Gallagher, 10 miles southwest of Corpus Christi, is shut down at 150 feet. Saxet Oil Co.'s No. 2 Meaney is setting casing at 3,216 feet; No. 3 Meaney is in gas sand at 3,234 feet and is setting liner.

Refugio Gas Field—Refugio

Houston Oil Co.'s No. 6 Rooke at 2,440 feet is rigged up to deepen; No. 1 Rooke at 2,340 feet is rigged up to deepen; No. 4 Rooke cored sand at 2,634 feet; No. 5 W. J. J. Heard is drilling in gumbo at 3,216 feet; No. 1 Smith Heard is rigged up to deepen; No. 11 W. J. J. Heard is trying to sidetrack at 2,658 feet. Houston Gulf Gas Co.'s No. 2 Shelly is waiting on casing at 3,307 feet; No. 5 W. Heard is drilling at 830 feet; No. 2 Ryals is drilling at 2,830 feet; No. 1 Vance set casing at 3,600 feet; No. 5 Fanny Heard is in sand at 3,276 feet; No. 3 A. W. Heard set surface casing at 400 feet; No. 4 A. W. Heard is drilling at 2,510 feet; No. 1 Smith Heard is standing at 2,510 feet.

White Point Gas Field—San Patricio

Alamo Drilling & Leasing Co.'s No. 1 Hunter has derrick lumber ordered out. Houston Oil Co.'s No. 3 Humble is rigged up; No. 4 Humble is drilling at 2,300 feet; No. 5 Humble is location; No. 2 Ragsdale at 3,735 feet tested water; No. 3 Ragsdale is location. Mission Drilling Co.'s No. 1 Morris at 2,170 feet has oil showing and set casing to test; No. 2 Cage is location. Saxet Oil Co.'s No.



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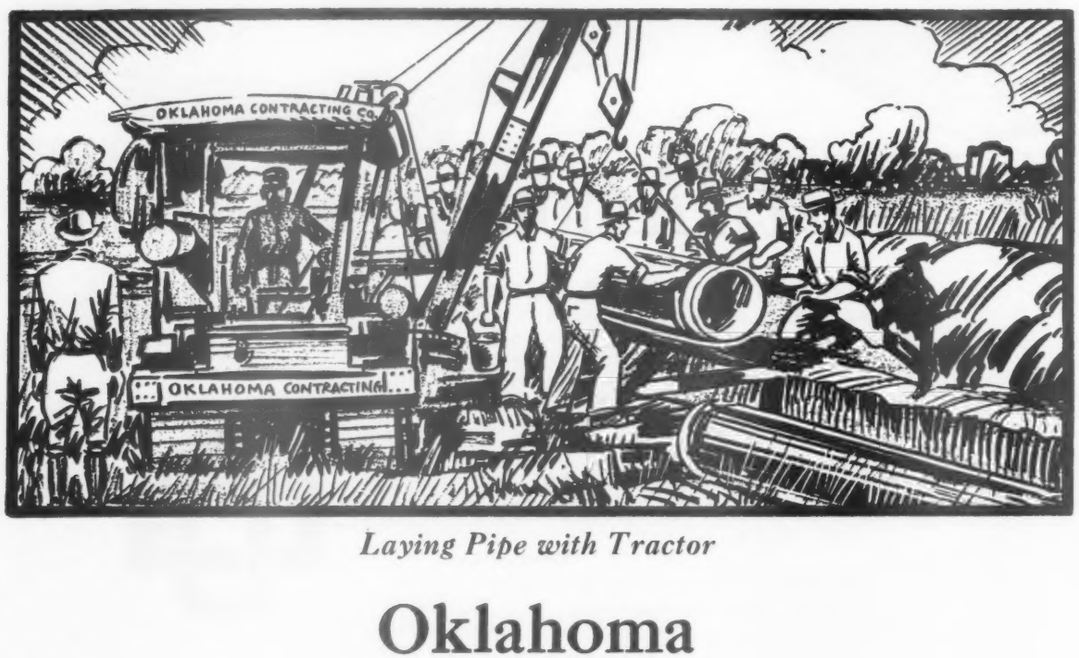

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White Point Development Co. is in sand at 2,180 feet and set liner; No. 8 Rachal is drilling at 2,534 feet; No. 10 Rachal is standing at 400 feet; No. 1 Hunter is waiting on water.

SOUTHWEST WILDCATS

(Continued from Page 64)

field. Ed Leach is now drilling No. 2 Collins in that section and is down 1,274 feet and is endeavoring to prove up the field yet. Leach's well is in the extreme western part of San Patricio County, next south of Live Oak, and last week Pargee Oil Co. abandoned its No. 1 Beall down the river, several miles from Leach, at a depth of 2,825 feet. It had no shows of any importance. There is a scheme to deepen it but if this is done a heavier rig will be moved in.

Guadalupe County Test

O. W. Killam, who brought in the discovery well in the Mirando Field and since then has discovered several of the new producing spots in that territory has entered the wildcat ranks northeast of San Antonio in Guadalupe County. He is all rigged up and is now laying a water line to his No. 1 Calvert in Fulcher Survey, 6 miles east of Seguin, 110 feet from the north line and 1,250 feet from the west line of the farm.

Among disappointments during the past week was the Southern Gas Co.'s No. 1 West in northern Zavala County, which completed the contract depth to 1,500 feet. There is a possibility the well will go on deeper and try to find other sands. Witherspoon is down 1500 feet on his No. 1 West, which is only 200 feet from a gas well drilled some years ago by the Sun Oil Co. and plugged because there was no market for the gas.

Just as wildcatting was well started in Starr County two years ago the slump settled in and things quieted down. Now they are starting up a little again. The Texas Company has made two new locations, one in Block 92 of Porcion 68 and the other in Block 91 of Porcion 68 in the western part of the county above Roma, and Jusch Exploration Co. is standing at 450 feet in No. 1 Frank Doyne in Block 13 of Porcion 75.

Chacon Oil Co.'s No. 1 Jungman at 940 feet in Medina County reported in The Oil and Gas Journal last week is being put on the pump and starting off well, has been pumping for a week and making about 3 or 4 bbls. of oil a day. The oil is rather high gravity, and the well is classed as commercial. It is located a little west of the southern end of Chacon Lake in eastern Medina County, south of Noonan, and is in the southwest corner of the J. Degent Survey. Gravity of the oil is about 32. Nearest production is in the Ina Field about 12 miles west and a little south and in the Somerset Field about 15 miles southeast.

Duval County

R. Driscoll's No. 9 Driscoll, Survey 23, located 1,875 feet to west line and 2,850 feet to south line, at 2,549 feet in sand at 2,531-49 feet tested dry, and is drilling deeper, planning to go to 3,600 feet unless production is reached before; No. 10-A Driscoll, Survey 448, located 1,070 feet to east line and 2,758 feet to north line, is drilling at 1,210 feet. Milo E. Trussell, trustee's No. 1 Moody, NW NE. Survey 60, located 175 feet to west line and 150 feet to north line, at 2,413 feet after setting liner in cement and letting set for two weeks, was swabbed and at first showed oil and then turned to water. The owners believe cement failed to hold. Liner was set to cut off 2 feet of water sand above the oil sand. National Oil Co.'s No. 1 Ball, Survey 16, located 450 feet to north line and 150 feet to east line, at 780 feet broke clutch and shut down for one day but has resumed drilling. Houston Oil Co.'s No. 1 Woods-Welder, Survey 233, located 1,750 feet to east line and 100 feet to north line, is rigging up.

Jim Hogg County

T. G. Shaw's No. 1 Jones, Survey 381, Block 12, located 171 feet to south line and 486 feet to west line, is drilling at 1,400 feet. Holden and others' No. 3 Jones, Share 27, Block 136, located 330 feet to east line and 440 feet to north line, is standing at 2,548 feet.

Starr County

Kusch Exploration Co.'s No. 1 Frank Doyno and others, Block 13, Porcion 75, is drilling at 450 feet. Clark & Woodruff's No. 1 Kelsey, Porcions 76, 77 and 75, at 423-24 feet tested little oil and gas and is to drill deeper. J. E. Harston's No. 1 H. Guerra, Survey 43, located 660 feet to south line and 1,320 feet to east line, is standing at 500 feet.

Atascosa County

Eckert and associates' No. 1 C. T. Tom, located 2,500 feet to north line of farm and 2,700 feet west of highway, is drilling.

Bexar County

Allen Burnam's No. 1 Ward, southwest of Martinez, in the A. A. Gardiner Survey, is drilling at 928 feet. Larson-Walsh's No. 1 Oppenheimer, Survey 180, located 330 feet to south line and 330 feet to CWL of survey, has been spudded in.

Bastrop County

Mrs. McMurtray's No. 1 B. L. Duran, L. Flint Survey, 150 feet to northwest lines and 900 feet to southwest lines, has been spudded in. Noack & Laning's No. 1 Roemer, Isaac Casner League, is shut down at 1,935 feet. James O'Hara's No. 1 Pritchett, 7 miles east of Bastrop, is preparing to resume drilling at 1,950 feet on the old test. B. W. Owens' No. 1 Ed Jones, 150 feet to north and east lines of 34.5 acres and 2 miles northeast of Cedar Creek, has rigged up.

Bee County

D. Hewitt's No. 1 G. A. Ray, 1½ miles northeast of Pettus, has moved in heavy rig at 2,303 feet; No. 1 Schultz is drilling at 650 feet. Red Ant Oil & Gas Co.'s No. 1 Perry & Chestnut, B. Q. Hadley Survey, 450 feet to east line and 1,600 feet to south line of farm, has resumed drilling at 805 feet.

Blanco County

C. W. Bates' No. 1 Herman Massey, Henry Manton Survey, 920 feet to north line and 660 feet to east line of survey, has been spudded in. Holden & Caldwell have supdded in test on the 30,000 acres they hold on the Kendall-Blanco lines. Robert A. Rodson's No. 1 Glasscock, Survey 50, located 150 feet to CEL, is rigging up.

Caldwell County

Lu-Tex Oil Co.'s No. 1 Wilson, A. Floyd Survey, 2,320 feet to east line and 200 feet to south line, spudded in and set surface casing. Dickinson & Smith's No. 1 Martin Callahan, Willard Cooper Survey, shut down at 2,406 feet flowing sulphur water. Detex Oil Co.'s No. 1 Hardeman, 4 miles north of Luling, is shut down at 3,075 feet. Charley Hirtz and others' No. 1 Will Parr, Byrd Lockhart Survey, 150 feet to north line and 2,700 feet to west line of farm and road, is shut down at 65 feet. Ratcliffe's No. 1 J. L. New, James Hindes Survey, 150 feet to west line and 600 feet to south line, is standing at 2,914 feet in Edwards. The Texas Company's No. 1 E. A. Robuck, Ben McCulloch Survey, 1,200 feet to southwest lines and 600 feet to southeast lines, is drilling at 2,137 feet.

DeWitt County

Durbin Oil Co.'s No. 1 Oscar Gohmert, G. W. Brooks League, 175 feet to north line and 300 feet to east line, is drilling at 1,800 feet. Empire Southern Oil Co.'s No. 2 Smith, Survey 3, located three-quarters of a mile west of No. 1, is shut down at 3,150 feet. H. T. Roe's No. 1 Lienhard, D. J. Bibb Survey, SW cor., is shut down at 950 feet.

Dimmitt County

Humble Oil & Refining Co.'s No. 1 City National Bank, Survey 654, located 700 feet to north line and 2,000 feet to east line, is drilling at 4,868 feet.

Edwards County

Devil's River Oil Co.'s No. 2 Turney, C. C. S. D. & R. G. N. G. Survey, Section 167, located 2,040 feet to north line and 660 feet to west line and 600 feet north of No. 1, is drilling at 300 feet in lime.

Frio County

Karnes and others' No. 1 J. J. Little is drilling at 600 feet. F. A. Lain's No. 1 Edwards, Hooper & Wade Survey, 920 feet to CNL, is to resume work soon at 1,250 feet. P. A. Neilan's No. 2 Blackaller, James Gouley Survey, is shut down at 2,950 feet.

Fayette County

National Oil Co.'s No. 1 J. C. Melcher, League 1, located 300 feet to north and east lines of farm, has ordered out steel derrick. Williams & Phalon's No. 1 Cervenks, F. C. S. L. Survey, Block 97, is ready to spud in as soon as titles are straightened out.

Goliad County

C. W. Simpson's No. 1 Ideus, W. H. Pendelton Survey, 156 feet to north line and 540 feet to west line, is shut down at 2,323 feet.

Gonzales County

W. D. Flynn's No. 1 Wilhausen, S. Bateman Survey, is location in the east central part of the lease. Green & Shall's No. 2 Dubose, J. Pratt Survey, is location 350 varas to CSL. L. L. Jones and others' No. 1 Campbell, Moore & Bridges Survey, SW cor., is shut down at 1,980 feet. L. P. Unkel's No. 3 Johnson, Slayden shallow field, is drilling in rock at 950 feet.

Guadalupe County

H. H. Temple's No. 1 McAllister, Edward Kellett Survey, 450 feet to northeast lines and 1,420 feet to northwest lines, is drilling at 2,200 feet.

Hays County

Orren Estess and H. J. Moore's No. 1 C. N. Sledge, located 285 feet to northwest lines of farm, has derrick completed and rig on the ground. J. E. Rodgers' No. 1 Hohenburg is setting casing to test oil showing at 2,141 feet.

Jackson County

J. B. Douglas' No. 1 C. O. Lowrance, 12 miles northwest of Edna, has derrick up.

Karnes County

Reynosa Oil Corp.'s No. 2 Butler, Block 43, located 1,000 feet south of No. 1, is fishing at 2,070 feet.

Kerr County

Walker-Van Duyn's No. 1 Barfield, B. B. Peck Survey, 4,700 feet to north line and 450 feet to east line, is shut down at 1,802 feet.

LaSalle County

E. V. Chenoweth's No. 1 fee, Survey 58, located in the north central part of the lease, has spudded in. Francis C. McCarty organization's No. 1 R. C. Sutton, Survey 36, located 250 feet to south line and 1,500 feet to west line, is rigged up.

Live Oak County

War. Wood Hunt's No. 1 McNeil, Jane Curry Survey, is drilling at 1,890 feet. J. A. Harper's No. 1 Nichols, 150 feet north of the Frio River and 1,500 feet to west line and 150 feet to south line of the survey, is drilling at 150 feet. Houston Oil Co.'s No. 2 Brown Land & Cattle Co. is standing at 1,901 feet.

Medina County

Pat M. Armstrong's No. 1 Mangold, Survey 62, located 200 feet to south and east lines, has completed rigging up at 480 feet and resumed drilling. F. Banderet's No. 1 Mofield, Survey 532, is shut down. Chacon Oil Co.'s No. 2 Jungman, Survey 31, located 1,500 feet to east line and 500 feet to south line, is standing at 1,675 feet and may plug back to 1,560 feet to test oil showing at that depth. Morgan-Walsh's No. 1 Haby, Survey 50½, located 330 feet to west line and 600 feet to south line of survey, is waiting on surface casing.

Maverick County

Ryan Consolidated Petroleum Co.'s No. 1 Indio, Survey 14, is setting casing at 4,270 feet. Rycade Oil Corp.'s No. 1 Chittim, Section 129, Block 7, is shut down at 4,295 feet for water; No. 2 Chittim, Section 158, Block 7, is drilling below 3,000 feet.

McMullen County

Houston Gulf Gas Co.'s No. 1 Lark, O'Boyle Survey, is shut down temporarily at 1,500 feet.

San Patricio County

Houston Gulf Gas Co.'s No. 1 Welder, 200 feet south of Chillipin Creek and 2 miles east of Sinton, at 2,210 feet took 5-foot core with top showing little gas and bottom salt water. Ed Leach's No. 2 Collins, Edward McGolin Survey, SE. Section 39, and a few miles northwest of Mathis, is drilling at 510 feet in gumbo. George Pickett's No. 1 Whitworth, NW NW, Section 60, is in sand at 2,348 feet tested salt water; No. 1 Garret is shut down at 3,030 feet. Pargee Petroleum Co.'s No. 1 Beall at 2,740 feet is attempting to get core. National Oil Co.'s No. 1 J. E. Sullivan, J. C. McMullen Survey, 500 feet to SW cor., at 1,805 feet, is shut down and will resume during the week. John Sigmund's No. 9 Robinson is shut down at 2,245 feet.

Travis County

Roy Clark's No. 1 Scrivner, J. B. Hurd Survey, north central part, is drilling in shale at 225 feet. T. P. Garrett's No. 1 Rowe, R. Hornsby Survey, 900 feet to north and east lines, is shut down at 971 feet for repairs.

Uvalde County

Pure Oil Co.'s No. 1 J. D. Smythe, Survey 687, located 740 feet to north line and 146 feet to SE cor. of Section 20, at 1,678 feet is underreaming to lower 12-inch casing.

Victoria County

J. J. Elam's No. 1 Vol Kutchka, 200 feet to CNL of Survey 40, is shut down at 1,000 feet waiting on drill stem.

Val Verde County

East Del Rio Oil Co.'s No. 1 Russell, Section 183, is shut down at 3,210 feet. Magnolia Petroleum Co.'s No. 1 Whitehead, Survey 81, is drilling at 5,800 feet. O. O. Owens and others' No. 1 Mills, Section 128, Block 1, is shut down at 4,210 feet. W. V. Traves' No. 1 Wilson, Section 115, is shut down at 905 feet.

Zavala County

Western Gas & Fuel Co.'s No. 1 West, Survey 46, Section 82, is drilling at 1,431 feet in rock, with shale cored at 1,400-02 feet. Witherspoon Oil Co.'s No. 1 West, 200 feet northeast of Sun's No. 1 West, is drilling at 112 feet.

CALIFORNIA FIELDS

(Continued from Page 72)

Edison district, Goose Lake, Wasco and the district located between Wasco and the Lost Hills Field. The Standard acquired another 640 acres near Wasco while C. W. Wrightsman acquired an additional 80-acre lease due west of Wasco in the Goose Lake region. Approximately 3,500 acres of prospective oil land scattered over 24 sections immediately west of Shafter were tied up during the past few weeks. Reports from Shafter indicate that wildcatting activities in this area are being sponsored by two or three Long Beach operators. The initial test is to be drilled on the Mettler ranch and the construction of this rig, which will be located in Section 8, will be well under way within a week.

An unconfirmed report credits the Shell with quit claiming all but approximately 6,400 acres of the Miller & Lux holdings in the San Joaquin Valley aggregating in excess of 100,000 acres. The property retained by the Shell is on the Semitropic Ridge extending southeasterly from Lost Hills through Rio Bravo to Fruitvale. The selection is of importance as it is in a direct line northwest of the Fruitvale and Union Avenue area now being tested by the Pacific Eastern. The Shell is drilling a test in Section 21-26-22 near the northern apex of the Miller & Lux acreage which has been retained. The Shell's present wildcat will constitute the first conclusive deep test ever made on Semitropic Ridge, which lies north of the Buttonwillow area where the Milham Exploration Co. has opened up a dry gas field of considerable promise. The semitropic Ridge, which extends southward to Fruitvale, is the highest ridge out on the floor of the southern San Joaquin Basin.

The Doheny-Stone Drill Corp. has taken over the Milham's No. 1 Buttonwillow in Kern County and preparations are being made to resume drilling and make a conclusive deep test. The Main Oil Co. has resumed operations on its test in Section 8-28-23 after a suspension of several months and while this test has revealed the existence of a dry gas the well was never successfully completed. The holdings of the Main Oil Co. are located between Wasco and the area being developed by the Milham Exploration Co. These two areas are situated on opposite sides of the Semitropic Ridge, the Mil-

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ham's holdings being on the south side and the Main's properties on the north.

Southern California Wildcats

The only development of interest in Southern California wildcatting circles was the staking of a location for another project to be drilled in the Hawthorne district. This was Scott & Currier's No. 1 Hawthorne in Section 33-3-14 and it is the intention to start actual drilling within 10 days. The Associated has not yet picked up any exceptionally promising indications in No. 1 Patterson, a wildcat at Rivera, and this project has consequently taken on a rather doubtful outlook. The Olympic Refining Co. is making exceptionally good footage in its wildcat at Sunset Beach, an area between the Huntington Beach and Seal Beach Fields. The recent abandonment of a wildcat by the Petroleum Securities in the Fairview area south of Huntington Beach has apparently had no effect on the operations of the Mesa Petroleum Corp. which is drilling ahead in a projected deep test at Costa Mesa in the Newport district.

KANSAS FIELDS

(Continued from Page 60)

and made 15 bbls. after the shot. Empire Oil & Refining Co.'s No. 1 Haggart, NW cor. SW NW, Section 9-25-13, made 35 bbls. from sand 1,494-1,500 feet. Bisagno and others' No. 2 Roglin, NW cor. SE SW, Section 10-25-13, drilled sand 1,450-74 feet, total depth 1,480 feet and made 15 bbls. after a shot of 80 quarts.

Marion County

Phillips Petroleum Co.'s No. 2 McCoy, SE cor. NE NE, Section 22-17-4, Lost Springs Pool, is rigging up. The Prairie Oil & Gas Co. made location for No. 1 Razineck, NW cor. NE SW, Section 22-17-4.

Russell County

Midwest Refining Co.'s No. 3 Mermis, NW cor. NE NE, Section 5-14-15w, is making 120 bbls. from sand 3,063-3,105 feet. Location has been made for Dickey and others' No. 1 Tedger, C SE SW, Section 18-35-1.

Sumner County

Roxana Petroleum Corp. made location for No. 5 Shore, SE cor. SW SE SE, Section 24-31-2. De Frost Drilling Co.'s No. 1 Bryan, SW cor., Section 25-30-2w, is making 1,000,000 feet of gas from sand 1,931-85 feet. Washahoma Oil Co. and others' No. 2 Jenkins, NE cor. SE, Section 26-31-2, was shot with 150 quarts in sand 1,867-1,913 feet and made 50 bbls. La Robb Oil Co.'s No. 2 Buffington, Midland Valley right of way, Oxford Townsite, Section 14-32-2, made 525 bbls. from sand 2,022-2,112 feet after the shot. Derby Oil Co.'s No. 2 Burkett, Block 87, Oxford Townsite, Section 14-32-2, made 170 bbls. after shooting sand 2,005-2,112 feet. Roxana Petroleum Corp.'s No. 5 Emerich, SW cor. NW SE, Section 14-32-2, was completed for 1,000 bbls. in sand 1,906-2,095 feet after shooting 210 quarts. No. 3 Nevitt, Tract 3, Oxford Townsite, Section 14-32-2, made 300 bbls. from sand 2,007-2,101 feet. No. 1 Scroggins, Tract 5, Oxford Townsite, Section 14-32-2, was completed for 800 bbls. after shooting 145 quarts in sand 2,014-2,105 feet. Wasson and others' No. 2 Gassoway, SE cor. SW, Section 14-32-2, had sand 1,997-2,127 feet and made 1,500 bbls.

Wilson County

Culp & Miller made location for No. 1 Willoughby, NW cor. NE, Section 25-27-13.

Woodson County

Pryor & Lockhart made location for No. 1 Sasse, NW cor. NE SW, Section 36-23-13.

OKLAHOMA FIELDS

(Continued from Page 60)

Co.'s No. 1 Glover, NW cor. SW NE SW, Section 13-4-8w, is drilling at 230 feet. Gypsy Oil Co.'s No. 6 Kayser, SE cor. SW NW, Section 16-3-5w, is drilling at 81 feet.

Carter Oil Co.'s No. 1 McCaughtry, SE cor. NE NW, Section 26-5-8w, has been shut in for 29,000,000 feet of gas from 2,020-2,400 feet. Magnolia Petroleum Co.'s No. 3 Duke, SE cor. NE SW, Section 35-5-8w, set 8-inch casing at 2,150 feet, drilled to 2,400 feet and is making 50,000,000 feet of gas. Watchorn Oil & Gas Co.'s No. 1 Rogers, SW cor. NE SW, Section 36-5-8w, has been abandoned at 4,160 feet. Hall & Briscoe's No. 5 Nation, NE cor. NW SE, Section 34-3-5w, has been abandoned at 2,575 feet.

Kay County

Harris & Haun's No. 1 Tickel, NE cor. SE NE, Section 25-29-1w, is a machine rigging up to drill for shallow gas. Carter Oil Co. and Ona Oil Co.'s No. 2 Shimp, SE cor. NE SW, Section 17-29-1, is rigging up to deepen from 1,497 feet to the Stalnaker sand. No. 7 Shimp, C NE SW, Section 17-29-1, is a location, to be drilled for shallow gas. Dewey & Hoeffer made location for No. 3 School Land, CNL S half SE NW, Section 36-28-1w, to drill to the 1,500-foot gas sand. Industrial Oil & Gas Co.'s No. 1 Letzig, C SE NE, Section 28-27-1w, Blackwell area, is drilling at 600 feet. Rogers and others' No. 1 Allidge, C NE SE, Section 32-27-1w, is drilling at 250 feet.

Comar Oil Co.'s No. 1½ Brown, NW cor. NE SE SE, Section 16-29-1w, has been completed for 2,900,000 feet of gas from sand 1,607-1,617 feet. Four Leaf Gas Co.'s No. 1 Parker, SW cor. NE SW, Section 28-29-1, is dry and abandoned at 1,465 feet. Harris & Haun's No. 1 Fulton, C SW SE, Section 12-28-1w, is dry and abandoned at 788 feet. O'Shaughnessy and others' No. 1 Attebury, C NW NE, Section 1-27-1w, Blackwell Field, missed the gas sand and has been abandoned at 1,185 feet. Harris & Haun's No. 4 Brown, C NW SW, Section 9-27-1w, is dry and abandoned at 3,621 feet. Otstot Development Co.'s No. 3 Barr, NW cor. SE NW, Section 16-27-1w, is dry and abandoned at 3,455 feet.

Logan County

Wentz Oil Corp.'s No. 1 Williams, NE cor., Section 31-19-4w, was shot with 40 quarts in sand 6,175-6,235 feet, swabbed 50 bb'ls. was deepened to 6,279 feet and abandoned. Bryan & Emery's No. 1 Scott, NW cor. SE, Section 33-19-4w, has been plugged and abandoned at 4,504 feet.

Love County

Magnolia Petroleum Co.'s No. 1 Askew, NW cor. SW NE, Section 7-7s-3, is dry and abandoned at 3,350 feet.

Osage County

Peters Petroleum Co.'s No. 10, SW cor. NE SE NW, Section 17-27-6, Burbank Pool, is rigging up. Lewis Gas Products Co. is building the rig for No. 5, NE cor. SW SW, Section 2-26-6, Burbank Pool. Peters Petroleum Co.'s No. 2, NW cor. SW, Section 26-25-9, is drilling at 2,165 feet, being deepened from 2,131 feet. Marland Oil Co.'s No. 9 NW cor. NE SE, Section 20-23-8, is an old well cleaning out to deepen from 2,640 feet.

Osage Gas Producing Co.'s No. 384, SE cor. NW, Section 5-27-11, made 750,000 feet of gas at 803-18 feet. Indian Territory Illuminating Oil Co.'s No. 381, NW cor. SW SE, Section 22-27-11, is making 3,000,000 feet of gas from sand 1,834-87 feet. H. H. Mundy's No. 2 CEL W half SE, Section 36-22-8, is dry and abandoned at 2,513 feet.

Okfuskee County

Champlin Oil & Refining Co. has the rig on the ground for No. 9 Jacobs, SE cor. SW SE, Section 15-11-11. The rig is also at the location for No. 5 Washington, SE cor. NW SE, Section 15-11-11. Duffield & Colton made location for No. 1 Dindy, SW cor. NW, Section 31-11-11.

Pontotoc County

Indian Territory Illuminating Oil Co. has the rig up for No. 1 Taylor, NW cor. SW SE, Section 29-5-5.

Pawnee County

R. E. Freeman and others' No. 1 Adams, C NW NE, Section 17-21-7, is spudding. Garber & Pulse and others' No. 1-A Gilbert, SW cor. SE, Section 21-21-8, is rigging up. Rube De Long and others' rig is on the ground for No.

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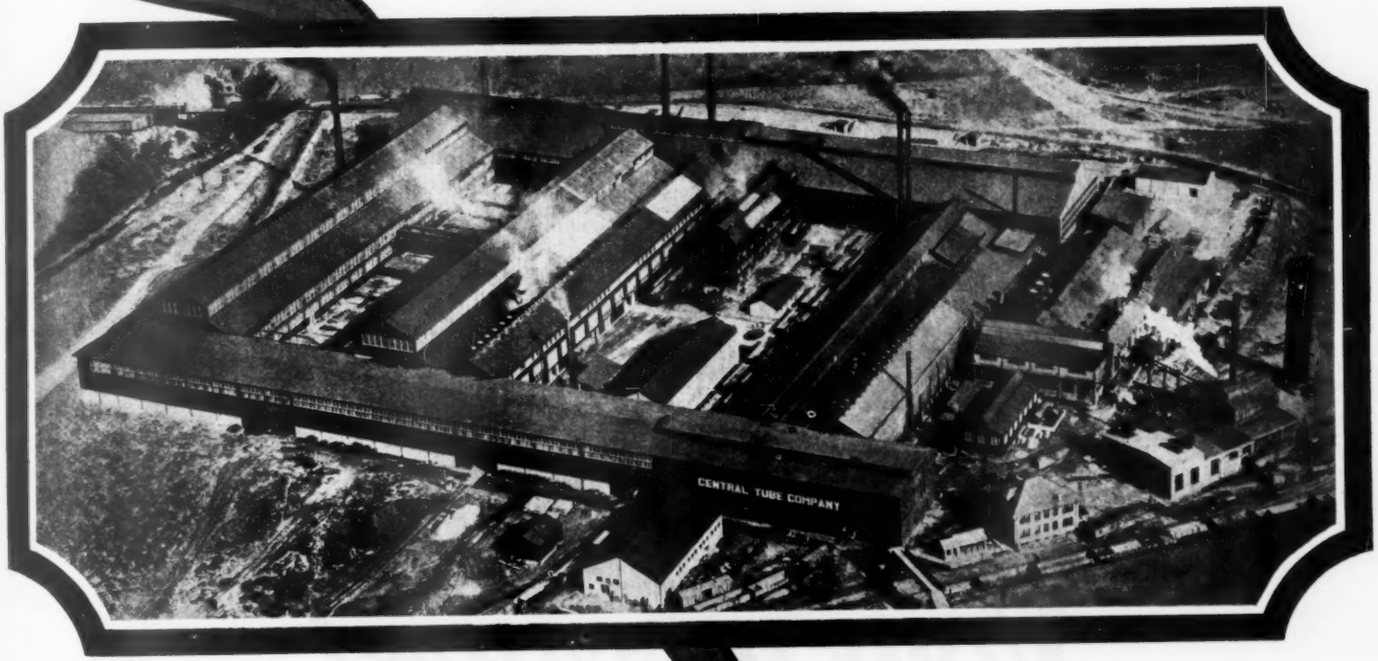

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2 Rogers. NW cor. SE NW, Section 11-20-7.

Stephens County

Pearce & Brown built the rig for No. 7 Wilkinson, SW cor. SE, Section 27-1s-5w, Snodgrass and others moved the rig material out for No. 3 Nigh, NE cor. NW, Section 34-1s-8w. Wirt Franklin Petroleum Corp. made location for No. 1 Perkins, SE cor. SW, Section 12-1s-4w. Magnolia Petroleum Co. has the rig under construction for No. 2 Bell, SE cor. SW, Section 13-1s-4w. Schermerhorn Oil Co. and others' rig is under construction for No. 3 Shields, NW cor. NE SW, Section 13-1s-4w. Skelly Oil Co. is moving material out for No. 5 Krebbs, SW cor. NW SE, Section 13-1s-4w. The rig is being built for No. 6 Krebbs, SW cor. SE, Section 13-1s-4w. Wirt Franklin Petroleum Corp. is erecting the rig for No. 7 Apple-Franklin, NE cor. NW NE, Section 24-1s-4w. C. R. Smith is building the rig for No. 2 Peddycourt, SE cor. NW NE, Section 25-1s-4w. Kidney and others' rig is up for No. 1 Dare, SE cor. SW NW, Section 1-2s-8w.

Schermerhorn Oil Co. and others' No. 2 Shields, SE cor. NE SW, Section 13-1s-4w, made 1,157 bbls. from series of sands 2,512-3,307 feet. Owen & Wood's No. 9 Massey, SW cor. SE NW, Section 12-2s-8w, has been abandoned at 2,148 feet.

Okmulgee County

Paraffine Oil Co.'s No. 2 Martin, SW cor. SE NW, Section 26-16-11, is drilling deeper at 2,730 feet. Goodman and others' No. 5 Anderson, CEL SE SE, Section 36-16-14, is cleaning out to deepen from 1,276 feet. L. L. Wheeler and others built the rig for No. 2 Prince, CNL N half NE, Section 36-14-12. B. Martin's No. 2 Calloway, CEL SE NW, Section 3-11-12, is drilling at 1,200 feet. Jack Summers has a machine at the location for No. 2 L. Rowel, SW cor. NW NE, Section 10-15-14. E. A. Hutchinson and others moved a machine to the location for No. 5 H. Starr, CNL NW SE, Section 2-14-14.

Sunray Oil Corp.'s No. 1 Cooper, NE cor. NW, Section 36-16-13, an old well dril'ed deeper, is dry and abandoned in Turkey Mountain sand 2,459-2,511 feet. Sheldon Oil Co. and others' No. 1 Carter, SE cor. NE SW, Section 15-13-12, topped Wilcox sand at 2,874 feet, drilled to 2,907 feet and was plugged back to 2,894 feet where it made 32 bbls. J. W. Sharpe and others' No. 5 Colbert, SE cor. NW, Section 16-14-14, has been completed for 7 bbls. in sand 795-815 feet. F. D. Misener's No. 4 Kershaw, SW cor. SE SE NW, Section 11-13-14, is dry and abandoned at 1,270 feet.

Tulsa County

Superior Oil Corp. has the machine at the location for No. 9 McKee, CWL SW SW, Section 6-19-10. Hayden and others moved a machine out for No. 3 Futrell, SW cor. NW SW, Section 6-19-10. Holmes and others moved a machine to the location for No. 1 Cooks, NW cor. SW, Section 20-19-10. Enfisco Oil Corp. has the rig on the ground for No. 1-A Simmons, NE cor. SE, Section 12-17-12.

Superior Oil Corp.'s No. 8 McKee, NW cor. SW SW, Section 6-19-10, made 100 bbls. from Red Fork sand 2,016-37 feet after shooting with 90 quarts.

Muskogee County

J. A. Swindler has the rig up for No. 3 Thompson, NE cor., Section 17-15-15. J. L. Haner and others moved a machine to the location for No. 2 Stidham, SW cor., Section 9-15-18. J. R. Parks has a machine on the location for No. 1 Benge, NW cor. SW NE NW, Section 13-15-19.

J. A. Swindler's No. 2 Thompson, NE cor., Section 17-15-15, gauged 1,500,000 feet of gas from sand 769-879 feet. J. R. Graves and others' No. 1-A Flowers, SE cor. NW, Section 5-13-16, made 40 bbls. from sands 1,829-35 feet and 1,840-53 feet.

Wagoner County

Linden & Davis' No. 1 Taylor, SE cor. NW SW, Section 20-18-15, is drilling at 200 feet. Bu-Vi-Bar Petroleum Corp.'s No. 2-A Tiger, CEL NE SE, Section 30-18-15, is a machine rigging up. C. M. Bradley's No. 1 Wilson, SW cor. NE NE, Section 11-18-17, is dry and abandoned at 855 feet.

Sequoyah County

Citizens Gas Co.'s No. 1 Packard, SE cor. NE, Section 7-11-27, has been abandoned at 2,000 feet.

Hughes County

Indian Territory Illuminating Oil Co. has the rig on the ground for No. 1 Bingham, NW cor. SE SW, Section 8-5-8, Allen Field.

Pottawatomie County

Magnolia Petroleum Co. has built the rig for No. 2 Shipman, NW cor. NE, Section 19-7-4, Pearson Pool. The rig is up for No. 1 Yants, NE cor. SW, Section 19-7-4.

Indian Territory Illuminating Oil Co.'s No. 1 State, SE cor. SW, Section 16-8-5, had sand 4,299 feet to 4,306 feet and then plugged back to 4,290 feet and is swabbing 281 bbls. Independent Oil & Gas Co. and Darby Petroleum Co.'s No. 1 Wallace, NW cor. SW SW, Section 14-7-4, Pearson area, has been completed for 705 bbls. in Hunton lime 3,665-3,818 feet.

Seminole County

Magnolia Petroleum Co. is building the rig for No. 4 Hammond, SE cor. NW NE, Section 10-8-6, Bowlegs Pool. The rig is on the ground for No. 5 Hammond, NW cor. SE NE, Section 10-8-6. The rig is under construction for No. 1 Harjo, NE cor., Section 14-7-6, Little River Pool. Louisiana Oil Refining Corp. has moved rig material out for No. 2 Punluste, NW cor. NE SW SW, Section 8-5-8, Allen Pool.

Mid-Continent Petroleum Corp.'s No. 1 Fleet, SE cor., Section 7-5-8, made 1,180 bbls. from sand 2,585-2,593 feet. Sinclair Oil & Gas Co.'s No. 2 Sango, SW cor. SE NE, Section 2-9-5, Earlsboro Pool, was completed for 935 bbls. in Wilcox sand 4,370-86 feet. Amerada Petroleum Corp.'s No. 5 Roger, SW cor. NE SE, Section 3-9-5, has been abandoned at 3,171 feet. Barnsdall Oil Co.'s No. 3 Pack, SE cor., Section 10-9-5, topped Earlsboro sand at 3,662 feet and after drilling to 3,706 feet was plugged back to 3,703 feet and swabbed 142 bbls. Magnolia Petroleum Co.'s No. 3 Sullivan, SE cor. NW NW, Section 12-9-5, Earlsboro Pool, is dry and abandoned at 4,315 feet. Sinclair Oil & Gas Co.'s No. 4 Cumsey, NE cor. SW NE, Section 10-8-6, made 1,909 bbls. from Wilcox sand 4,104-34 feet. Carter Oil Co.'s No. 4 Jones, NE cor. SE SE, Section 11-8-6, Bowlegs Pool, made 350 bbls. from Wilcox sand 4,220-50 feet. Mid-Continent Petroleum Corp.'s No. 8 Smith, NW cor. SW SW, Section 12-8-6, was completed for 195 bbls. in Wilcox sand 4,209-40 feet. Magnolia Petroleum Co.'s No. 3 Davis, SW cor. NW NE, Section 13-8-6, had Wilcox sand from 4,212 feet to 4,224 feet and made 302 bbls. by the swab. Carter Oil Co.'s No. 1 McGiesy, NE cor., Section 21-8-6, swabbed 50 bbls. from Misner sand after drilling Wilcox sand 4,375-84 feet and plugging back to 4,252 feet. Mid-Continent Petroleum Corp.'s No. 2 Bowlegs, SE cor. NE SW, Section 22-8-6, is dry and abandoned at 4,790 feet. Indian Territory Illuminating Oil Co.'s No. 2 Work, SW cor. NW SW, Section 24-8-6, swabbed 135 bbls. from Wilcox sand 4,423-32 feet.

ROCKY MOUNTAIN AREA

(Continued from Page 69)

close to $500,000. The only other Sinclair interests in the territory, exclusive of the pipe line company and the Sinclair Crude Oil Purchasing Co., is the Sinclair-Wyoming Oil Co., which has a 40-acre lease in SE Section 2-39-79, in Salt Creek, which will continue to operate that property.

Wellington Pool Extended

The Wellington Pool in Larimer County has been extended a quarter mile to the north by the Union Oil Co. of California's No. 2 Foster, C NE SW Section 30-10-68, which topped the Muddy sand at 4,490 feet and commenced filling up with oil. Casing was set and the well resumed drilling. This is a joint operation with the Texas Production Co. The well is located one-fourth mile north of No. 1 Foster, which is making around 100 bbls. a day, and is approximately 100 feet lower on the structure. The sand was found at approximately the same elevation above sea level as No. 1 Plummer, a quarter mile east of No. 1 Foster, the well which produced 89,212 bbls. of pipe line oil in 10 months after having come in as a water well.

Two other wells are drilling on this structure, the Union's No. 7 Buckeye, Section 31-10-68, drilling at 285 feet, having commenced spudding January 21, and same company's No. 1 Gault-Piatt-Puleston, NE, Section 7-9-68, drilling at 1,256 feet. Same company's No. 6 Buckeye, which reached the sand and showed for a commercial producer several weeks ago, has not yet been completed, due to a fishing job. West of the Fort Collins-Wellington Pools, the West Side Development Co.'s No. 1 Besaw, NW, Section 5-8n-69, was being prepared for a shot at a total depth of 4,461 feet when a few hours previous to the time set for placing the shot, the rig caught fire and was burned. This hole is supposed to be about 350 feet into the Pennsylvanian and at 4,190 feet was full of water with some oil percolating through from the bottom.

Florence Pool

Three or four wells were reported completed the past week in the west extension of the Florence Pool in Fremont County. This territory is not scouted by any of the major companies and details of completions are meager, but from best information available, it is said that about 500 bbls. of new production can be credited to the new wells. In the south extension of the same pool, the Travis-Raddatz Syndicate's No 16 Travis, Section 28-20-69, has been completed at 1,860 feet and looks as if it will be good for around 100 bbls. initial.

The Northeastern Colorado Oil Co.'s No. 1 State, Section 36-8n-55, on the Willard Dome in Logan County, which has been held up by a fishing job, has cleaned up that operation and is drilling again and is bottomed at 5,564 feet in what is believed to be the Lakota sand. Slight showings of oil and gas through the column of water from the Dakota is reported. The well has considerable open hole which is showing a tendency to cave. The last string of casing run was 4¾-inch and the danger of losing the hole is considerable. However, the drillers have taken the cue from the Repollo well at Boulder and have brought in a truck load of salt which is being used to harden up the walls.

In Las Animas County, the Phillips Petroleum Co.'s No. 1 Haskins, Section 23-29s-56, Red Rocks Dome, joint with the Reiter-Foster Oil Co., is drilling at 775 feet. The Parker Club's No. 1 Adams, Section 32-34-56, is reported shut down for repairs at around 4,000 feet.

In Huerfano County, the Kinney-Coastal Oil Co.'s No. 1 Pinos, Section 24-26s-68, Escondido Dome, joint with the Texas Production Co., is bottomed at 915 feet and reaming to lower the 10-inch.

In Jackson County, the Continental Oil Co.'s No. 1 Peterson, Section 1-9n-79, North McCallum Dome, is drilling at 4,645 feet, and its No. 1 Pollock, Section 2-9-79, is drilling at 4,655 feet. Same company's No. 1 Hoye, Section 34-9n-78, on the south dome, is sidetracking at 4,415 feet.

New Tests Scheduled

Several new tests are scheduled to be started shortly. One of the most important of these will be located about 5 miles west of the city limits of Denver and between Denver and Golden. Charles L. Woods, who is in charge of the Producers & Refiners hotel at Parco, Wyo., is the principal known party in the operation. Reports of a structure in that area have been made on several occasions and a few years ago the Producers & Refiners seriously considered drilling a test, but for some unknown reason surrendered its options. Last December, C. L. Chatfield, C. D. Titus and E. H. Gitzer applied to the Board of County Commissioners of Jefferson County for some leases on county lands. This was the first intimation that further efforts were being made to secure a test. It is understood that 10 square miles of territory have been blocked up. Twenty-five years ago Arthur Lakes, then geologist on the staff of the Colorado School of Mines at Golden, directed attention to the area. F. F. Hintze, formerly chief geologist for the Producers & Refiners, and Dr. F. M. Van Tuyl, head of the geological department of the School of Mines, have reported favorably upon the structure. A tentative location has been made in Section 30-3s-69, and Doctor Hintz is now checking the ground for final location. Agreements call for spudding in by March 1.

The Eureka Oil Co. has commenced spudding in a test on Section 24-1s-1e, near the town of Grand Junction in Mesa County. The well is located one-fourth mile north and the same distance east of the same company's No. 1 Holly Sugar, in the NE SW Section 24 which was drilled to 1,550 feet where it was unable to shut off a flow of artesian water.

A rig is reported to have arrived at Hayden, on the Denver & Salt Lake Railroad in Moffat County consigned to the Union Oil Co. of California. Location of the test has not been announced but it it understood to be on the Pagoda structure.

New Mexico

George F. Getty, Inc.'s, No. 1 Nicholas, NW NW Section 25-20-29, in the Twin Hills district, 10 miles southeast of the Artesia Pool in Eddy County, is reported to have reached the pay at 1,381 feet and to have started flowing at the rate of 4 to 5 bbls. an hour. The location is a little more than a mile to the south and east of its No. 1 Hinkle, NE cor. Section 23-20-29, which was completed at 1,368 feet and flowed 69 bbls. in the first 24 hours and 77 bbls. in the second period after the 3-inch tubing had been run and which was then shut in. This makes the new area look quite attractive for shallow drilling. The Nicholas well topped the salt at 370 feet and bottomed it at 970 feet. The top of the white lime was found at 1,234 feet. At 1,030 feet, it had a show of gas estimated at 20,000 to 25,000 feet a day. Snowden & McSweeney have made a location for a well in SW NE Section 35-20-29, approximately 1¼ miles south and west of the Nicholas well. About 7 miles to the west of the new area the Midwest drilled a well to 2,500 feet which had a show of gas and another well drilled to 1,700 feet 4 miles to the east also had some gas. In between these locations it is expected that considerable drilling will take place.

R. D. Compton's No. 4 Mann, SW NW Section 4-18-27, on the western side of the Artesia Pool, looks as if it will be a producer. Two sands were found at 1,975-80 and 2,260-80 feet and hole was drilled to 2,295 feet. The lower pay was shot and the well cleaned itself, and preparations are geing made to shoot the upper sand. Previous to shooting the lower horizon about 25 bbls. of oil came into the hole in 12 hours. Cleaning out is still in progress on Levers & Carpers' No. 5 State, Section 3-18-28, which was shot last week with 100 quarts at 2,377-96 feet, and it is still uncertain as to what it will make. Grimm & Ross' No. 1 Daugherty, NE SW Section 3-17-27, is drilling below 1,700 feet. Gates, Holman & Rehn's No. 1 Murdock, SW NE cor. Section 7-21-28, has rig completed and is about ready to spud. Hamilton Petroleum Co.'s No. 1 Billings, Section 12-19-26, is drilling below 1,550 feet. Pueblo Oil Co.'s No. 1 Gessert, NW NW Section 1-17-31, has temporarily suspended fishing operations at 3,705 feet preparatory to installing a second whipstock. Texas Production Co.'s No. 2 Robinson, NW cor. SW Section 25-16-31, ran tubing to 4,005 feet, total depth 4,100 feet, and is on production, making 98 bbls. naturally in the first 24 hours.

Lea County

In Lea County, the Maljamar Oil & Gas Co.'s No. 2 Beardsley, Section 15-17-32, is drilling in lime at 4,200 feet. The next pay is expected at around 4,250 feet. Drilling is slow due to hole being full of oil from the 3,900-foot horizon. It makes a flow each time the bit is pulled. Cecil Bordages' No. 1 Hughes, Section 27-19-38, is shut down at 1,225 feet for en-

gine repairs. The 12½-inch is frozen at 1,203 feet and the 10-inch will be run. Midwest Refining Co.'s No. 1 State, Section 9-19-38, is overhauling equipment.

In Chaves County, the Arena Oil Co.'s No. 1 Wilkins, NE NE Section 18-13-31, is drilling below 2,500 feet. It topped the salt at 975 feet and bottomed it at 2,010 feet. It had a show of 20,000 feet of gas at 2,461 feet and the pay is expected at around 2,600 feet.

In Quay County, the Gibson Oil Corp.'s No. 1, Section 25-8-32, Benita Dome, is overhauling machinery and preparing to resume. It is bottomed at 3,500 feet where it has been idle for some time.

In McKinley County, in the northwestern part of the State, the Continental Oil Co.'s test on the Carica Dome, SW Section 9-17-7, topped the Dakota at 2,958 feet and found water. It is drilling at 3,092 feet. This test also showed water in the Mesa Verde sands. Producers & Refiners' No. 2 Hospah, Section 12-17-9, is drilling at 80 feet. Reports concerning the Reliance Oil Co.'s No. 1 Valentine, Section 15-17-9, continue to be inconsistent and from the most reliable information it appears that the well is not commercial at present depth of 1,103 feet. It is reported about three-fourths full of mud and water with some oil and gas showing. The showings are from a horizon at 1,093-1,103 feet. The gas is in sufficient quantity to burn a small flame.

In San Juan County, the Continental Oil Co.'s No. 17, Santa Fe lease, Section 2-29-19, Rattlesnake Dome, is drilling at 4,414 feet. The Co-Ne-Mo Oil Co. has commenced spudding in its No. 1, Section 28-29-11. Drilling started in an 18-inch hole. A. Johnson, trustee's, No. 1, Section 34-29-11, is drilling at 1,200 feet. San Juan Petroleum Co.'s No. 2 San Juan, Section 9-29-13, is drilling at 2,500 feet. Kane Brothers, drilling for T. G. Nollsch, are spudding on Section 21-29-29, on the Largo structure.

Wyoming

A move by the Department of the Interior to confiscate tankage, equipment and portions of pipe line of the Sinclair Pipe Line Co.'s oil line from Wyoming to Missouri located on Government land, under the recent decision of the United States Supreme Court invalidating the Mammoth Oil Co.'s lease on Teapot Dome, has been averted by the department rescinding the order intended to accomplish that purpose. It has been generally understood that the Teapot Dome litigation did not involve title to the pipe line, which was built outside of the naval reserve as a separate enterprise by another company, but recent developments indicated that the Government held otherwise. Rights of way over government land were granted the company by the Department of the Interior which also had made the lease on Teapot Dome to the Mammoth company, and the department, it is understood, took the position that all permanent property on the public domain reverted to the Government under the Supreme Court decision.

The state of Wyoming stood in a position to suffer a severe loss if this plan was carried out. It would remove from the tax lists, for one thing, about $8,500,000 worth of taxable property. The abandonment of the line might also restore the old differential of 45 cents per barrel between the Mid-Continent and Wyoming posted prices for crude oil which was abolished as a result of the pipe line construction. Gov. Frank C. Emerson went to Washington and succeeded in having the order rescinded and an announcement to that effect was made this week by the Wyoming State Board of Equalization. The price of royalty oil on state land also was affected and the board pointed out that by holding the Wyoming prices up to Mid-Continent quotations, the pipe line meant to the State and counties through which it passed a total increased valuation of $23,420,917. Interest on permanent school funds contributed last year $900,000 to school operations and increased government royalties paid to the State amounted to $213,986.

One completion in Salt Creek was reported for the past week, this being the Wyoming Associated Oil Co's No. 18-L, NW Section 26-40-79, completed in the Lakota sand at 2,478 feet with an initial production of 61 bbls.

One abandonment was reported in the Producers & Refiners Corp.'s No. 1, on the SE cor. NW Section 13-46-89, on the Tensleep Dome in Washaki County. The test went through the Embar and Tensleep sands and found nothing but water. It was abandoned at 3,420 feet. It was the only test on the structure.

Oregon Basin

News from the Cody Petroleum Co.'s No. 1 Klindt, NE SE NE Section 7-51-100, on the Oregon Basin structure in Park County, which topped the Embar sand several weeks ago and commenced filling with oil, is being anxiously awaited. When the sand was topped, operations were suspended until the 6¼-inch casing could be run and cemented and tankage installed and connections made. The Illinois Pipe Line Co. has made connections with a 1,000-bbl. flow tank, and most of the twenty 200-bbl. tanks are up and ready to receive oil. A steel line measurement showed that the Embar was topped at 3,539 feet instead of 3,553 feet as at first reported. The oil rose 1,500 feet in the hole at the time. Drilling has been resumed with mud in the hole to keep back the pressure and at last reports the bottom was at 3,606 feet. The plans provide for drilling on through the Embar and as far into the Tensleep as possible. The Ohio Oil Co.'s No. 1 Baston, NE cor. NE Section 6-51-100, is coring, the latest depth reported being 3,225 feet. Charles E. Orchard's No. 1 Rue, SW SW Section 28-51-100, is bottomed at 3,240 feet and had to shut down for a day or two awaiting some equipment. Cody Petroleum Co.'s No. 2 Klindt, NE NE Section 7-51-100, is drilling at 1,952 feet and using electric drive. Ferdig-Wyoming Oil Co.'s No. 2 Hough, NW cor. SE Section 19-51-100, is cleaning out at 2,640 feet. Linco Petroleum Co.'s No. 1 Rosseau, SW cor. NE Section 33-51-100, has underreamed to bottom at 1,900 feet and is drilling ahead at 2,010 feet. Ostland Development Co.'s No. 1 Rousch, NW cor. Section 9-51-100, is drilling at 2,100 feet and carrying the 10-inch. Producers & Refiners' No. 1 Frisby, SW NE Section 32-52-100, is bottomed at 1,409 feet on top of a gas sand, and is rigging up rotary to go through the horizon. Continental Oil Co.'s No. 1-A State, Section 16-51-100, is still fishing at 1,610 feet. Other operations show no material change from last week.

The Union Oil Co. of California's No. 1 Taylor, NE NE NW Section 22-47-101, on the North Sunshine structure in Park County, has a good showing of black oil in the top of the Tensleep sand and is running 4-inch casing to make a water shutoff before drilling deeper. It topped the Embar at 3,232 feet and the Tensleep at 3,486 feet.

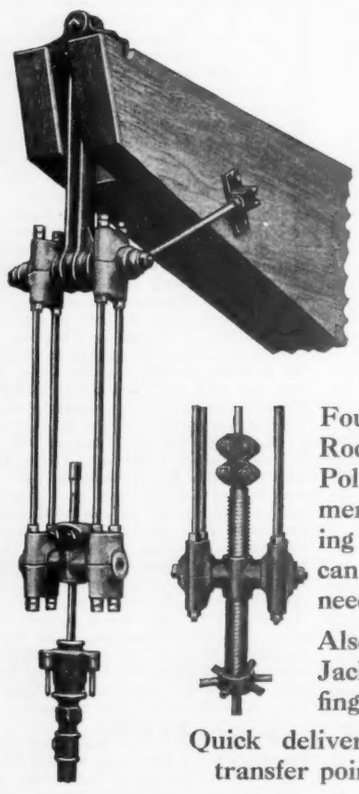
Garland Dome

In Big Horn County, the Utah Southern Oil Co.'s No. 3 Government, Section 29-56-97, on the Garland Dome, is drilling in gray shale at 2,554 feet. The Producers & Refiners' No. 3, Section 24-56-98, on the same structure, is shut down at 1,287 feet.

In the Big Muddy Field, the Continental Oil Co.'s No. 54 Whiteside, Section 9-33-76, has been completed at 3,165 feet, and swabbed 40 bbls. initially. It will be put on the pump.

Drilling operations in the La Barge district in the southwestern part of the State continues at a low ebb on account of the cold weather. The California Petroleum Corp. is not starting any new work and most of the other wells are shut down. Joe Minton's No. 1, Section 34-27-113, is drilling at 1,205 feet, and his No. 1, Section 9-27-113, is drilling at 465 feet. The Akin Butte Oil Co.'s No. 2, Section 22-27-113, is trying for a formation shutoff at 1,370 feet, and the Midvale Oil Co.'s No. 1 Fallis, Section 8-27-113, is resuming operations with cable

(Continued on Page 264)



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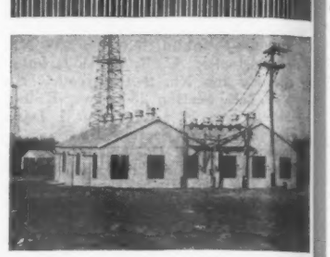

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All Above Material Used but in Good Condition.

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Tulsa, Oklahoma

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Low Cold Test Fuel Oil in Demand

Desirable Material Short in Chicago. Zero Oils at Premium. Gasoline Demand Light but Tone Firmer

By J. B. Waldo

CHICAGO, Feb. 6.—The demand for low cold test fuel oil was active on Monday and the supply of desirable material was short of the demand. Ninety-five cents was asked and paid for fuel oil around 20 gravity with a real zero cold test where prompt shipment could be had and for deliveries over February. Prices for the zero oils continued strong at a premium of 10 cents over the ordinary cold tests. This demand comes from the distributors and users of heating oils and the inquiries for fuel oil for industrial purposes showed no real change in size or number of orders. Gas oils were unchanged, although firmly held. Gas companies have not had a large demand for their product and have not used the usual quantity of oil.

The spot gasoline demand was light, but the market showed a firm tone and the most quoted price for U. S. Motor gasoline was 6 cents, although two refiners were still selling at 5¾. One of these stated it will probably advance to 6 cents shortly as it was well sold up. Several marketers have supplies of U. S. Motor gasoline bought at 5½ and 5⅝ cents, which they are now holding for 6 cents, but might take a little less to move the material. There was no change in the higher tests on Monday and the demand was not active. North Texas refiners state that they were unable to quote for delivery much if any before March 1 and several are naming a price of 6⅜ cents for motor gasoline. Kerosene was, if anything, a little more firm in tone, but was still being offered from several sources at 4⅛ to 4¼. Warmer weather now prevails over this section and the prediction is for rain and continued temperature above normal for the season.

Bringing Price in Line

There has been a determined effort made during the last 10 days to bring the refinery markets in line and get rid of the low prices that were quoted by a number of large refiners. As has been stated from week to week quite a number of the most important refining organizations have held their price firmly at 6 cents for the U. S. Motor grade and have not sold below that price. Some have held for slightly higher prices, 6⅛ cents, and the like. But there have been others who wanted business bad enough to sell openly or on the side at less than 6 cents.

There was nothing in this movement to bring prices up to a level that would induce the dealers to increase their purchases. They have not done so, according to the reports made by a large number of leading sales offices both of refiners and marketers. The consumption is good in practically all parts of the territory and the jobbers are ordering what they need to care for their customers but last week the business was of the same routine character that has characterized the ordering all through the season. Contracts are being drawn against steadily and no complaint is made regarding the takings on contracts but the spot business is light, and so far only a small part of the spot orders have been placed at a price higher than 5¾ cents. This was the bottom price at the close of last week with a market range for the U. S. Motor grade of 5¾ to 6 cents. Of course, there is a good deal of conversation regarding higher prices but so far the buyers have been content to await developments and continue to conduct their ordering on the same conservative scale as in the past.

No Objection to Increase

There does not seem to be the slightest opposition to higher prices for gasoline. Many buyers have said that they would be glad to see the refiner secure better returns for his product but they want to buy as low as their competition. This would mean that there must be equality of prices, quality and of service. All agree that this would be a fine thing for the industry and they are also unanimous in the opinion that it cannot be done.

The demand for the higher gravities was less active than in the previous week and prices, while maintained, were none too strong. Apparently refiners taking advantage of the fact that there had been some rather liberal purchases for export, chiefly in North Texas, which would take some of the usual sources of supply out of the domestic market for a while were making a determined effort to get the price of the U. S. Motor grade in line and were not trying for a general advance in all grades. It would be a little early for any general advance to get under way without much opposition. February is usually one of the most unfavorable months in the year in the gasoline business and no material increase in the consumption can be anticipated during this month even with favorable weather.

One of the smaller near-by refineries was making a delivered price for this city that figures not over 5⅝ cents. Their output is not large and is a blend but it serves to demoralize. No report was made that showed an improvement in the situation to the east of this city. When the city of Detroit made its most recent contract at a price that figures 5.35 cents for U. S. Motor gasoline, Group 3 basis, it was thought to be a very low price but the three months' contract has not expired and recent contracts made for Detroit delivery are on the basis of 5.15 cents, Group 3, while fuel oil has been sold at 45 to 48 cents a barrel on the same basis. The situation is worse in Ohio even than eastern Michigan. With increasing refining capacity in the refining centers which enjoy advantageous freight rates to this district it is certain that much of the territory east of Chicago has ceased to be a field for the profitable sale of the product of the Group 3 refineries.

There was a fair demand for natural gasoline but prices were only barely maintained as several quotations were received showing a small reduction from the prices recently held. The movement did not seem to be general but some makers of natural gasoline were willing to shade recent quotations for immediate business.

Kerosene Market Dull

There was no life to the kerosene market and sales were reported as low as 4⅛ cents to dealers. Refiners believe that there will be a real improvement to the demand early next month when dealers begin to supply themselves in preparation for the spring demand for tractor fuel. There has been some buying for export reported. Leading refiners here are holding for 4¼ cents, Group 3 basis, and believe that it will pay them to do so rather than to sell for less.

The colder weather that prevailed the first half of last week, brought an active demand for distillates but the supply was so ample that holders of stocks were glad to sell at the previous prices and there was no change in the price situation. There are numerous contracts that have not been taken out which can be drawn against in many cases but the trouble is with many of these that the prices in the contracts are above that prevailing today in the spot market. One refiner stated last fall tht several million gallons had been sold at prices ranging for 4¼ cents up. Some of these contracts have been adjusted as to price not once but twice to induce the dealer to take out the oil. The dealer's excuse is that he has to compete with other sellers of the same material and could not sell nor order out the distillate unless he had a competing cost. Generally, the distillate business to date has been disappointing. Even the largest concerns report that their sales of furnace oil have not been what they anticipated. The reason seems to be that heavier oils are now usable by many of the domestic oil burners. With the coming of milder weather the last two days of last week the demand was less active from consumers and the buying by distributors fell off. Many dealers have supplied themselves and several state that if the demand does not increase materially they will need little or no additional supplies of distillate this season. The market was unchanged at 3¼ to 3⅜ cents for the 38-40 straw dstillate.

Gas Oil Firmer

Gas oil is firmer all along the line although the chief strength is still in the zero grades. The straight run oil is chiefly wanted by gas companies and only a limited number of industrial users purchase the straight run oil with its high cold test. The larger gas companies are supplied through contracts and bulk purchases made earlier in the season and with the coming of the longer and warmer days they are drawing a little less oil from storage and the requirements will decline from now on.

The smaller buyers among the gas companies who order for their needs from time to time bought some oil last week at 2½ cents and a little at an eighth of a cent less, but the market for resellers and a limited number of the large consumers who bought direct was 2½ cents in quantities and 2⅝ cents was asked of the single car and small-lot buyers. The demand for the zero oils was from distributors. The sales of the regular 32-36 gas oil have been cut into by the lower gravities. The demand from consumers who use both the larger and the domestic size of automatic burners has been for the 28-30 and the 30-32 gravities, a condition that has been brought about by the improvment in the burners. Some of the oil men who have burners in their own homes stick to the regular gas oil grade and even a distillate to avoid any possible trouble which sometimes comes from using an oil that is too heavy, but the general practice with the domestic buyer of gas oils is to take the gravity that the maker of his burner recommends. These usually name the lowest gravity at which the burner can be expected to work satisfactorily under favorable conditions.

Zero Oils Scarce

The zero oils are scarce and hard to find right now and several of the most prolific sources of supply state that they are sold up for the month. These refiners claim that they have not been operating their cracking plants and have produced very little zero oils. Some of the Shreveport refiners have stocks and just before the cold snap were offering their stocks quite freely although they wanted their price. In this condition of the market with a demand for the zero oils and very little available the market has been firm although there has been little change in quotations, on the zero oils which have been firmly held for some weeks at least. The zero dark oils have continued to be quoted at 2¾ to 3 cents and the zero straw at 3 to 3¼ cents.

Fuel Oils Stronger

Fuel oils are stronger all along the line but the greatest strength is shown in the zero oils while in the higher cold tests, the price structure is simply firm and a little higher in the asking price. Refiners have as a rule marked up their fuel oils with a fair cold test 5 cents a barrel but this advance has not always been maintained by all refiners and some sales have been made at prices that are 2½ cents above the recent asking prices of these same concerns. No great quantity was involved and as a matter of fact there have been no large sales reported here of fuel oils. In the zero oils there is not a sufficient supply to permit of a large business and in the higher cold tests the buyers have not changed their methods of buying. The bulk of the orders still run from 5 to 10 cars. One large organization placed an order for 20 cars to be delivered a car a day which means that by the end of the month if not earlier that buyer will be back in the market for further supplies.

Lubs More Firm

Lubricating oils are a little more firm at the refineries, according to the local offices. Several plants state that they are contracted ahead for all that they care to book at the present time. Texas neutrals are firmer and only occasional soft spots develop and bright stocks are quite generally well ordered ahead and the price is steady to firm. The consumption of zero motor oils is good right now and some of the refiners report that they are contracting with their large customers for the season's requirements and in some cases arrange for early deliveries with datings which place no burden on the buyer and permits of a more gradual movement from the plant. This is not new but seems to be a plan more generally adopted than in previous years.

Tank Wagon Improved

The tank wagon situation is being greatly improved by the gradual ironing out of price cuts at a number of the worse points. Minneapolis, Indianapolis, Grand Rapids and Peoria have been advanced, in some cases to normal and in others to a price which while higher than recently held are still below normal. There is a great hope that there will be less price cutting over the territory during the coming gasoline season. No general changes have been made.

The gasoline consumption is very favorably reported on from all sections. Even from the more northerly parts of the territory where heavy snows frequently make motoring unpleasant in winter dealers state that the roads are open and their gasoline business is very good for the season. There are many dealers who also report that their business has been good from the point of profits made during the past year. Some of the smaller organizations make showings in their business that indicate a very capable management.

Outside of the selling of better grades of gasoline and lubricating oils, the furnace oil business is really the only opportunity that the distributor has to make his business larger without a material increase in his investment in stations, fixtures and other necessary properties required for the expansion of his gasoline business. The Chicago distributors have advanced their prices on the lower gravities of furnace oils, the advance last week for 32-36 gravity being one-quarter of a cent. There was no change made in the prices to consumers of the gas oils or distillates.

Blizzard Decreases Gasoline Demand

Tendency Toward Pessimism Evident in Eastern Markets. Kerosene Firm With Demand Improving

By N. O. Fanning

New York Bureau, The Oil and Gas Journal, Room 629, No. 101 Park Avenue, New York, N. Y

NEW YORK, Feb. 4.—Very few and unimportant changes were recorded in the eastern refined oil situation in the past week. An increasingly gloomy tendency was noted. Gasoline consumption has fallen off as a result of the year's first blizzard, and the export demand for gasoline, kerosene and lubricants has also turned down somewhat.

One bright spot in the situation is the smaller shipment of California oil to the Atlantic Seaboard, but this is regarded as only temporary. In fact there is plenty of cheap oil in sight for Atlantic Coast refiners for some months to come, in their belief, and in addition gasoline and fuel oil are also in good supply.

Although the belief for some time has been that prices of oil were on bottom, there is now a slight disposition in some quarters to anticipate lower quotations in some directions before any real improvement sets in. The tendency of gasoline at present is unmistakably downward.

Gasoline Market

For several weeks leading Atlantic Seaboard refiners have been quoting United States Motor gasoline in tank car lots f.o.b. refinery at 8¼ cents per gallon, with no real break in the ranks. Reports that lower prices have been made are not yet confirmed, but they persist that business has been transacted as low as 7½ cents during the past week. Whether these reports are more indicative of pessimism than of the facts of the case or not, at any rate they show that there is plenty of pessimism around.

One real indication of weakness in the gasoline market is found in the tank wagon situation. With gasoline selling retail at a maximum of 18 cents a gallon in New York City and vicinity, and at 17 cents in many other parts of this territory, it is quite evident the tank wagon market price of 17 cents is not general. It is not believed that garages and service stations are handling gasoline without any margin of profit.

Although the weather during the past week has been anything but favorable, retailers of gasoline say sales have been holding up exceptionally well. It is generally thought we are in for at least two months of real winter weather, at any rate, and refiners are governing their production schedules accordingly.

It is understood that at present and during December Seminole crude has been moving into the tanks of Atlantic Coast refiners at a heavy rate, and that most of this oil has been run currently. So long as it is available, there is not likely to be a great change for the better in the situation. Seminole crude has a high gasoline yield and does not require a great deal of treating. Atlantic Coast plants have been using less capacity and getting all the products they needed because of the availability of Seminole oil.

Kerosene

Kerosene continues to display a firm tone, with no actual change in quotations. The demand is much better. Movement of furnace oil into consumption has also improved greatly during the past week.

An increase in imports of prime white kerosene at New York and Baltimore is reported, with a somewhat weak tendency in prices at these ports. This has not reached serious proportions, however.

Water white kerosene continues to command 7½ cents a gallon at eastern refineries in tank car lots, and is understood to be moving briskly at this price.

Gas and Fuel Oil

Gas oil is steady and unchanged, at 5½ cents a gallon in tank car lots f.o.b. refinery. The grade quoted is "28 plus" used principally for artificial gas manufacture.

Diesel oil is in good demand at $2.10 a barrel, lighterage 6½ cents a barrel, and bunker fuel oil continues at $1.35 a barrel. lighterage extra. No change in conditions governing the local market for these products is discernible.

Lubricating Oils

Lubricating oil prices continue steady. A smaller demand for motor oils has not yet affected the price situation. Cylinder oils are in considerably better demand at present.

Red and pale paraffin oils are moving steadily, but the supply is liberal. Shipments of red oils from the Gulf Coast are increasing, and competition is consequently greater in this department.

Shipment of California red oils to the Atlantic Seaboard, which continued in somewhat limited volume during 1927, have ceased entirely.

Paraffin Wax

The paraffin wax market has improved considerably, with an increased domestic demand, largely from industrial sources. Prices for refined wax advanced from one-eighth to one-fourth cent a pound, with 120-122 a.m.p. now commanding 4 cents, 125-127 a.m.p. 4¼ cents, 130-132 a.m.p. 4¾ cents and 135-137 a.m.p. 5½ cents. While export demand has lagged somewhat, refiners do not believe this will offset the improvement in the domestic situation.

Petrolatum

Petrolatums are unchanged from last week. Demand has shaded off, especially for cream, lily white and snow white. Dark green continues in demand at 2 cents a pound.

The Export Market

The oil export market was rather quiet during the past week. No price changes were recorded. Forward orders were scarce. Chief activity was in the bulk division, and involved principally gasoline, kerosene and lubricating oil.

Reports that Sir Henri Deterding was sailing for New York in an effort to settle the dispute with Standard Oil Co. of New York and Vacuum Oil Co. over the purchase of Russian oil were denied by Dutch-Shell representatives here.

Exporters generally are not so interested in the struggle itself, of course, as in the possible effect on their business. Those who are marketing in Europe see a possible effect there because of the wide publicity given the matter. Consumers are taking somewhat of an interest in the matter, and many even are taking sides.

Meanwhile prices of gasoline and kerosene in India and adjacent countries are being cut, and one unfavorable effect of this to outsiders is that many of the smaller exporters in this territory are turning to other markets because the decline in quotations is rendering their business unprofitable. This is one way in which the dispute can have an unfavorable effect in outside markets.

London Oil Prices

The British oil market seems to have settled down again and prices are unchanged. The following are current quotations as reported by Banjamin & Co., London brokers:

Lubricating oils: Current quotations, American pales, £10 15s to £22 7s 6d; American refiners, £11 5s to £19 15s; American dark cylinders, £13 to 29£ 10s, and American filtered cylinders, £18 15s to £33 10s per ton, less 2½ per cent, barrels free, ex wharf.

Kerosene: Water white, 10d per Imperial gallon and standard white 9d per gallon, in bulk, for London and the home countries; for the rest of England and Wales the prices are 1d per gallon more, for Scotland 2d and for Ireland 3d per gallon above bulk prices for both qualities.

Gas oil: Unchanged; in rail tank cars, i.e., in 10-ton lots, 4¾d, and in smaller quantities of 1,000 gallons and upward, 5d per gallon.

Fuel oils: Furnace fuel oil, £3 15s per ton, in bulk, ex ocean installation, for inland consumption; for bunkers, 5s per ton cheaper, i.e., £3 10s per ton. Diesel oil: £4 10s per ton in bulk, for inland consumption; for bunkers, 5s per ton cheaper, viz., £4 5s per ton.

Gasoline: The following are the wholesale delivered prices in cans: Aviation, inner London zone, 1s 4d; outer London zone, 1s 5d; rest of England and Wales, 1s 6d; Scotland south, 1s 7d; Scotland north, 1s 7d; Belfast zone, 1s 7d; rest of northern Ireland, 1s 8d; Dublin zone, 1s 6½d; rest of Irish Free State, 1s 7½d. No. 1 inner London zone, 1s; outer London zone, 1s 1d; rest of England and Wales, 1s 2d; Scotland south, 1s 3d; Scotland north, 1s 3d; Belfast zone, 1s 3d; rest of northern Ireland, 1s 4d; Dublin zone, 1s 2½d; rest of Irish Free State, 1s 3½d. No. 3, inner London zone, 10d; outer London zone, 11d; rest of England and Wales, 1s; Scotland south, 1s; Scotland north, 1s 1d; Belfast zone, 1s 1d; rest of northern Ireland, 1s 2d; Dublin zone, 1s ½d; rest of Irish Free State, 1s ½d. Bulk prices 2½d per gallon less, in all areas except inner London zone, where they are 2d per gallon less.

Paraffin wax: Prices are from 2½d to 4½d per pound, ex wharf, ranging according to melting point.

Petroleum Exports

The following table shows principal exports of petroleum and petroleum products from New York during the last three weeks; all figures in gallons unless otherwise noted:

	Feb. 1	Jan. 25	Jan. 18
Gasoline—			
Bulk	4,515,000	5,527,259	1,770,000
Cases	175,240	1,418,750	200,000
Kerosene—			
Bulk	2,767,800	.....	545,020
Cases	989,730	2,408,410	1,674,500
Fuel oil:			
Bulk	2,618,932	3,325,770	.....
Lubricating oil:			
Bulk	4,318,797	.....	.....
Bbls.	424,650	715,848	600,800
Cases	56,900	387,870	42,470
Lubricating grease—			
Bbls. (lbs.)	.....	1,086,750	.....
Paraffin wax:			
Bags (lbs.)	.....	588,720	308,000
Bbls. (lbs.)	.....	1,149,690	140,000
Petroleum asphalt—			
Bbls. (tons)	.....	1,224	589

The foregoing figures include all shipments of 500 bbls., 1,000 cases, or over.

Petroleum Receipts

The following table shows estimated daily average receipts of crude and refined oil by water at Atlantic Coast ports for the last three weeks; also monthly record for the last 12 months (figures in barrels):

	Week Ended		
	Feb. 1	Jan. 25	Jan. 18
Gulf Coast	424,000	189,000	388,000
Pacific Coast	12,000	45,000	87,000
South America	157,000	129,000	63,000
Mexico	32,000	50,000	32,000
Total	625,000	413,000	570,000

	Daily Averages by Months				
	Gulf	Pacific	S. Am.	Mex.	Total
1927—					
Dec.	345,000	68,000	146,000	37,000	596,000
Nov.	318,000	62,000	109,000	42,000	531,000
Oct.	314,000	58,000	91,000	38,000	541,000
Sept.	336,000	97,000	99,000	69,000	601,000
Aug.	397,000	90,000	78,000	80,000	645,000
July	406,000	82,000	49,000	78,000	616,000
June	378,000	118,000	47,000	68,000	611,000
May	332,000	58,000	53,000	91,000	534,000
April	388,000	93,000	61,000	69,000	611,000
March	345,000	103,000	81,000	36,000	565,000
Feb.	379,000	89,000	48,000	40,000	556,000
Jan.	362,000	73,000	61,000	49,000	545,000

The foregoing figures are based on the carrying capacity of incoming oil-laden tankers.

CALIFORNIA RECEIPTS AND PETROLEUM IMPORTS

Imports of crude and refined oils at the principal United States ports for the week ended January 28 totaled 1,656,000 bbls., a daily average of 236,571 bbls., compared with 1,371,000 bbls., a daily average of 195,857 bbls. for the week ended January 21, and a daily average of 225,464 bbls. for the four weeks ended January 28.

At Atlantic Coast ports:	Jan. 28
Baltimore	65,000
New York	668,000
Philadelphia	172,000
Others	383,000
Total	1,288,000
Daily average	184,000
At Gulf Coast ports:	
Galveston district	65,000
New Orleans and Baton Rouge	303,000
Total	368,000
Daily average	52,571
At all United States ports:	
Total	1,656,000
Daily average	236,571
Daily average four weeks	225,464

Receipts of California crude and refined oils at Atlantic and Gulf Coast ports for the week ended January 28 totaled 385,000 bbls., a daily average of 55,000 bbls., against 848,000 bbls., a daily average of 121,143 bbls. for the week ended January 21, and a daily average of 69,821 bbls. for the four weeks ended January 28.

At Atlantic Coast ports:	Jan. 28
Baltimore	75,000
New York	90,000
Philadelphia	156,000
Others	64,000
Total	385,000
Daily average	55,000
Daily average four weeks	69,821
Distribution of total California receipts is as follows:	
Crude	90,000
Gasoline	231,000
Gas oil	64,000
Total	385,000

SHREVEPORT-EL DORADO ELECTS NEW DIRECTORS

SHREVEPORT, La., Feb. 4.—Capital which last fall effected consolidation of the Shreveport-El Dorado Pipe Line Co. and the Shreveport Producing & Refining Co. through purchase of controlling interest in the latter by the former organization, both of them having been created largely through the efforts of the late J. W. Atkins of Shreveport, was brought into the new board of directors elected at stockholders' meeting here last Monday. It appears in the presence of W. F. Lilly and W. H. Cunningham of Philadelphia on the board. A large part of the stock of the Shreveport Producing & Refining Co. is Philadelphia owned. Official personnel of the company is unchanged with C. D. Keen, Shreveport, president; J. B. Atkins, Shreveport, vice president and general manager; Guy Oaks, Shreveport, vice president, and Bradford Hearn, Shreveport, secretary-treasurer. Other members of the board are B. H. Gray, D. P. Hamilton, D. H. Christman and K. E. Merren all of Shreveport.

CALIFORNIA GAS COMMITTEE

F. S. Van Deinse of California Petroleum Corp. and R. E. Collom of Marland Oil Co. have been appointed by E. W. Clark, president of American Petroleum Institute, as additional members of the general committee to co-operate with the California gas conservation committee.

Trend in Gasoline Specifications

Changes in Automobile Design Important in Determining Changes in Methods of Refining Motor Fuels

By G. G. Brown*
Professor of Chemical Engineering, University of Michigan.

The present tendency in motor fuel is away from the misleading values such as color and gravity, and placing emphasis upon the properties of the fuel which influence the "performability" or performance that fuels can give in a motor car, namely, antiknock value, and effective volatility.

This emphasis upon antiknock value particularly has been brought about largely by educational advertising carried on intensively by a company expecting to profit directly by the results of the campaign. Because of the intensity of the advertising we find popularly that antiknock value is considered to be the one outstanding property of motor fuel. Perhaps, this is not so much an overemphasis of antiknock value as it is an underemphasis of other properties of motor fuel that have an equal, or at time even greater, influence upon the performance obtained from a motor.

Ease of starting and satisfactory acceleration, particularly of a cold motor, demand high partial volatility in a fuel even more than antiknock value. Also, the development of maximum power, and a high fuel efficiency in modern motors supplying a large amount of heat to the mixture because designed for 1920-22 gasoline, demand a relatively high endpoint in the A.S.T.M. distillation, as well as antiknock value. For these reasons it appears that the popular demand for low endpoint fuel is based largely upon the idea that low endpoints must give good acceleration and general performance because the old prewar gasoline which gave better acceleration had a low endpoint, rather than upon actual investigation which shows that high partial volatility or low 40 to 60 per cent points, is responsible for good acceleration and not low endpoints which may have the opposite effect.

Motor Performance

As the present tendency in motor fuel is definitely to place emphasis upon those properties which determine superior engine performance, it seems likely that the motor fuel for the immediate future will be marketed upon the basis of performability, and that those characteristics which indicate superior motor or engine performance will be those characteristics demanded in a motor fuel. Gasoline will be sold upon its merits as a motor fuel even more than motor cars will be sold upon their merits as motor cars, because the latter must possess style to satisfy the increasing number of women buyers, while fuel is usually placed in the tank and consumed without being seen.

During the past months with the intense interest in high compression motors and motor fuels of high antiknock value, the advertising carried by some of the motor car manufacturers featured simply the one characteristic of their motor car that it contained a high compression motor. Similarly the advertising carried by some of the refiners and marketers of petroleum products emphasized that their fuel had high antiknock value. In the more recent advertisements we find that emphasis is placed more upon general performance than simply high compression and high antiknock value.

Exactly what characteristics indicate superior performance is a rather long story, but the indication is definite that the burden carried by the automotive industry is being transferred from the shoulders of the automotive engineers to those of the oil industry. No longer is it required of the automotive engineers to build a motor to handle any fuel that might be produced but it is now the burden of the refiner to produce a fuel that will handle satisfactorily any motor car that might be produced.

Of course we expect the automotive engineer to design motors with due regard to the properties of motor fuel available at the time the motor car is to be used. Many engineers also readily admit that there is just as much opportunity for improvement in the motor as there is in the motor fuel, particularly as regarding knocking tendency. It has been shown by careful investigation that the compression ratio of an ordinary typical motor can be increased as much as 25 to 35 per cent without increasing the tendency of that motor to detonate provided the shape of the combustion chamber is so improved as to decrease the relative tendency of the combustion chamber to cause knocking or detonation. As an increase in benzol value from zero to 45 allows only a 20 per cent increase in the compression ratio, it is obvious that the automotive engineer cannot place the entire burden of eliminating the knock in high compression motors upon the characteristics of the fuel as he can in no small measure contribute to the practical use of high compression motors without change in fuel characteristics.

Volatility Important

On the other hand, it is extremely difficult if not actually impossible at the present time to provide sufficient heat to the fuel or to the carburetor for starting in cold weather if the fuel does not possess proper partial volatility for starting without the application of extra or external heat. The most hopeful solution for making cars start on fuels that possess low partial volatility seems to be in injecting liquid fuel into the explosion chamber rather than depending upon the drawing of an explosive mixture up the intake manifold through the intake valve in the usual way.

An even more serious difficulty is presented in driving a cold motor after it has been started. If the fuel does not possess the proper partial volatility for forming an explosive mixture under these conditions it is obviously impossible without changing the entire design and operation of the motor to inject liquid fuel into the combustion chamber. Dependence must then be placed entirely upon drawing an explosive mixture from the carburetor through the intake manifold into the cylinder.

Hot Carburetors

After the motor has become warmed up it is of course possible to apply sufficient exhaust heat to the intake manifold so that relatively satisfactory motor performance may be obtained when using fuels that are considerably less volatile than the minimum specified by the U. S. Motor fuel specifications. However, if a motor is designed to operate on these extremely low volatile fuels by supplying a large amount of heat to the intake manifold and carburetor, it has been found that good grades of fuel of sufficient partial volatility for satisfactory starting and acceleration on the motor as now designed cannot be handled satisfactorily.

This difficulty is due to the fact that the fuel becomes superheated in the carburetor due to the large amount of heat supplied to the carburetor and actually vaporizes in the carburetor before passing through the jet. As the carburetor jet is designed to meter a liquid and not a gas, as soon as the fuel vaporizes before passing the jet an extremely lean mixture is supplied which will not burn in the cylinders. This causes the motor to run irregularly and to miss explosions, and in severe cases actually prevents operation of the motor in any way. Many automobile manufacturers were so impressed with the low volatility of motor fuel as marketed in this country during the years of 1920-1923 that they still persist in heating the intake manifold and carburetor to extremely high temperature, so that a fuel possessing satisfactory volatility for starting and acceleration frequently causes trouble on these cars.

Refiners now recognize the importance of partial volatility and many of them are actually producing fuels that give easy starting and good acceleration on motors such as were available even before the World War. Recent surveys of motor fuel marketed throughout the country clearly indicate the present tendency to supply fuels of greater volatility in the first part of the distillation or of high partial volatility at low temperatures. Such fuels exert a greater vapor pressure and have a greater tendency to vaporize which occasionally causes gassing in carburetors which are highly heated. We have measured temperatures of the gasoline in the bowl and fuel ducts of the carburetor on a standard equipped car under actual driving conditions with atmospheric temperature of 80 degrees Fahrenheit as high as 178 degrees Fahrenheit. It seems obvious that fuels giving easy starting and having an initial boiling point on the A.S.T.M. distillation of about 95 degrees Fahrenheit will vaporize in the carburetor if the fuel is heated to temperatures much over 150 degrees Fahrenheit.

Limit to Dew Points

Even if the fuel does not possess a high vapor pressure or tendency to form vapor, but does have a rather low dew point or equilibrium dry point as indicated by a low 90 per cent point on the A.S.T.M. distillation, another difficulty is experienced when used on motors which supply a large amount of heat to the intake manifold. Apparently such a fuel forms a dry mixture at a relatively low temperature (100-120 degrees Fahrenheit) and the additional heat supplied by the exhaust jacketing of the manifold serves simply to superheat the mixture in the intake manifold. This superheating causes a loss in power, and an increase in fuel consumption particularly at part throttle, because it serves no useful purpose in improving distribution but decreases the volumetric efficiency of the motor.

Increase Knocking

The heating of the charge as it passes through the intake manifold made necessary by the relatively low volatility of motor fuels available in the last few years introduces another difficulty as heating the mixture increases the tendency of that mixture to knock or detonate in the explosion chamber. Apparently this increase in tendency to knock due to heating the charge as it passes through the intake manifold is due both to the increased temperature of the mixture and to the fact that better distribution is obtained if the mixture is reasonably dry.

The mixture which detonates worst is the best mixture for maximum power with good fuel economy. Accordingly if the mixture is not heated so as to be practically dry, we find uneven distribution to the different cylinders actually decreasing the tendency of the fuel to detonate because one cylinder will get a slightly rich mixture while another cylinder will get a slightly lean mixture. As mixtures both richer and leaner from the ideal mixture show less tendency to detonate, it is obvious that such conditions tend to decrease the knocking tendency of the fuel when used in a motor which does not heat the charge to a very high temperature.

At various times we hear statements that it would be very desirable if all of the fuels sold throughout the country were absolutely uniform so that the automotive engineer could design his motor to handle a uniform fuel with reasonable assurance that such a fuel would be generally available. This request seems to me to be a perfectly reasonable request but for some reasons rather a difficult proposition for the oil industry. On the other hand it seems to me to be a perfectly reasonable request from the oil industry that the automotive engineer adopt one uniform type of motor with about the same degree of heating on the manifold so that the oil industry can market one uniform fuel to give the proper performance on all motor cars.

So far the two industries have not succeeded in meeting on a common ground in supplying either the uniform fuel or a uniform motor. Perhaps in the interest of progress it is highly desirable that no standard fuel and no standard motor be adopted.

Necessary Compromise

In any case it appears necessary that the motor fuel possess such characteristics that it has sufficient volatility to start and operate those cars which supply the least amount of heat to the mixture and sufficiently low dew point as not to produce extremely wet mixture. On the other hand these fuels must not possess sufficiently high tendency to vaporize as to cause gassing in the carburetors nor sufficiently low dew point to allow the formation of superheated mixtures on those motors which supply a large amount of heat to the manifold or carburetor.

The difficulty of meeting these specifications is largely that we do not know exactly what the specification should be. The petroleum industry is now investigating carefully the relationship of vapor pressure, volatility, dew point and similar characteristics to motor performance and we should expect within a few months or years to know what are the proper specifications for motor fuels to be used on motors which supply a certain amount of heat to the intake manifold. Perhaps after this information is readily available it will be possible for the motor and oil industries to agree on a specifications for manifold heating and motor fuel characteristics.

Compresson Ratio

The performance of a motor car can be increased by increasing the compression ratio of the motor, or without change in compression ratio by increasing the piston displacement per revolution of the driving wheel, that is, by either increasing the speed at which the motor operates for a given car speed, or by increasing the bore of the motor without changing the rear axle gear ratio.

The former method of increasing displacement is widely used in England largely because taxes on motor vehicles are based upon the size of the bore. In this country both methods have been used depending upon the policy of the manufacturer. The former method is a more economical method for the motor manufacturer because it does not involve retooling his factory for producing a motor of a larger bore. It means simply different valve timing and relatively minor changes in the construction of his motor. However, a point is soon reached where the increased speed of the motor introduces difficulties in lubrication and losses in increased wear and friction of the moving parts, so that it is very doubtful if the motor manufacturers will appreciably increase the motor speeds above the high speeds now in use.

*Part of paper presented at meeting Toledo section, American Chemical Society.

COMMITTEE NAMED TO PONDER WATER PROBLEM

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ing, according to some of those present, would be to drill into each pay and exhaust its pay one at a time until the fifth pay had been exhausted.

R. B. Whitehead of the Atlantic Oil Producing Co., urged more co-operation in trading information from the field. He told of attending a hurriedly called meeting at which water samples were discussed. Many duplications were found in water samples. By closer co-operation he believed that a better understanding could be had of the water condition. He was of the opinion the upper gas must be conserved and added that one well cored by the Atlantic company showed the first 300 feet of the lime core to be fractured and saturated.

Method of Setting Pipe

In the main, all operators were close together on the proper procedure of setting pipe. The surface string should be cemented from top to bottom and cement the 8¼-inch pipe as close to the gas as is practicable. One company makes a practice of cementing surface pipe on top of the sand rock if it is free from cavities. After reaching the sand rock that company ratholes ahead and if cavities are found the hole is reamed on down below them and the surface pipe cemented. Sometimes the surface pipe has to be set as deep as 600 feet.

The hole is carried on down with an 11-inch bit and if the well is in a high area the 8-inch pipe is set above the big gas. If the well is in a low area the 11-inch hole is drilled into the gas lime 30 or 40 feet and then 8-inch set.

The suggestion to select an advisory committee was carried without a dissenting vote after the powers of that committee were determined. Some of the operators raised the question of the power of the committee and one operator stated his company would not enter a binding agreement to follow out the suggestion of such a committee.

The committee will hold its first meeting February 7 in the Southern Crude Oil Purchasing Co.'s camp at Wink.

Members of the committee are as follows: J. A. Morehouse, deputy supervisor, oil and gas division, Texas Railroad Commission, chairman; Rex Michaels, Cranfill & Reynolds; N. B. Winter, Atlantic Oil Producing Co.; J. C. Creedon, Skelly Oil Co.; Fred Sealy, Humble Oil & Refining Co.; A. B. Irions, Southern Crude Oil Purchasing Co.; A. J. Watson, Landreth Production Co.; F. W. Covault, Amerada Petroleum Corp.; George Hatfield, Turman and Maxwell; C. A. Daniels, Independent Oil & Gas Co., and W. F. Lewis. The Llano Oil Co. will be represented by Alex Fields who will also represent the Roxana Petroleum Corp. Pure Oil Co. was to name its representative at a later date. Magnolia Petroleum Co. and Murchison were not represented.

OIL LEGISLATION IS FRAMED BY COMMITTEE

(Continued from Page 47)

ent conditions not within the powers of the Federal Government.

The preparation of proper legislation respecting the waste of gas is one that requires a study, both of present existing conditions and of the existing laws of the oil-producing states. That study, we have not been able to make to a sufficient extent to satisfy us as to the exact nature of the legislation which should be recommended. So far as this particular point is concerned, we repeat our statement that legislation forbidding, as a general rule, the waste of gas is vitally necessary, and we recommend that further study be given in the immediate future to the form such legislation should take, and that when that study has been completed, definite recommendations on the subject be made to the oil-producing states. The legislatures of those states will not meet in regular session until next year, so that there is time for study before action can be had. We have thought it well, however, to make our report without waiting for the study required on this particular point, as Congress is in session and there is an immediate need for action by it in the particulars we have already mentioned and the further particulars to which we will next refer.

Public and Indian Lands

The production of petroleum from public lands, naval reserves, and Indian lands during the year 1926 constituted about 10.5 per cent of the total production of the United States. It will be seen that this production is but a small portion of the total. Nevertheless, what has been said in this report with respect to conservation and the necessity for better methods of development and recovery is equally applicable to the oil and gas deposits of the public domain and Indian lands.

Prospecting permits for discovery of oil and gas, and leases for known oil and gas deposits on the public domain in the United States and Alaska, are granted under the act of February 25, 1920 (41 Stat., 437). Under that act, the secretary of the interior has authority to prescribe rules and regulations governing the drilling of leased areas and to prevent waste of oil or gas. The committee is advised that under this authority during the present period of overproduction, the secretary of the interior, on the application of lessees, has shut in more than 50 per cent of the possible production from existing wells on the public domain, and has also relieved from the necessity of drilling additional wells in cases where lessees have requested such relief and where it is determined by the secretary that the cessation of drilling will not result in loss to the United States through drainage from wells on adjoining lands.

Osage Lands

As to Indian lands, varying situations exist. The Osage Indian lands in Oklahoma constitute a very productive area in which the oil and gas deposits are tribal property, and under the provisions of the act of March 3, 1921 (41 Stat., 1249), the secretary of the interior is required to offer for lease annually 100,000 acres, irrespective of the price of oil, conditions of overproduction, or any other considerations which make it inadvisable to make such offering. There are other Indian reservations throughout the United States, in which the ownership of the oil and gas is in the tribe, but as to these reservations there are no mandatory provisions of law requiring the secretary to lease within any stated period, the time of offering being consequently within his discretion. There are also throughout the country a large number of individual Indian allotments which may be leased for the production of oil and gas by the allotees, subject to the approval of the secretary of the interior. Rules and regulations have been promulgated and are enforced by the secretary relating to all these classes of leases and, generally speaking, when leases are issued, he has authority to relieve temporarily from drilling requirements, upon request of the lessee.

With respect to both public and Indian lands, it is doubtful whether the secretary of the interior would have authority to join, or permit lessees to join, in the co-operative development and operation of a pool. He should have this authority, and the committee recommends that Congress be asked to enact legislation to this end. It might also we well to remove any doubt which may exist as to this authority, to include in such legislation provisions authorizing cessation of drilling and of production during periods of overproduction, in the discretion of the secretary and with the consent of other parties interested in the leases or deposits.

Mandatory Leasing Opposed

The existing law mandatorily requiring, regardless of conditions, the offering for lease of 100,000 acres of Osage lands annually, is directly opposed to the principles of conservation, and not in the best interests of the Indians themselves. The committee is advised that legislation has been introduced in Congress authorizing the secretary of the interior to reduce the area to be hereafter annually offered, or to suspend the offering of lands for not exceeding two years at any one time when, in his opinion, an overproduction of oil or inadequate prices make such extension or suspension desirable. The adoption of this legislation is recommended.

To sum up, the recommendations are these:

1. Federal legislation which shall (a) unequivocally declare that agreements for the co-operative development and operation of single pools are not in violation of the federal antitrust laws, and (b) permit, under suitable safeguards, the making, in times of overproduction, of agreements between oil producers for the curtailment of production. The form of such legislation which we would suggest is Appendix "A" hereto.
2. Similar legislation by the various oil-producing states.
3. Immediate further study into the matter of the waste of natural gas, in order that legislation may be formulated which will forbid such waste as fully as may be done without working injustice and unreasonable hardship.
4. Legislation by Congress granting the secretary of the interior authority to join and to permit lessees from the Government to join in agreements for the co-operative development and operation of single pools.
5. The passage by Congress of the legislation heretofore recommended to it by the secretary of the interior, removing the existing mandate upon him to offer for lease annually, regardless of conditions, one hundred thousand (100,000) acres of Osage Indian lands.—Henry M. Bates, James A. Veasey, J. Edgar Pew, Abram F. Myers, Walter F. Brown, Thomas A. O'Donnell, E. C. Finney, W. S. Farish, Warren Olney, Jr.

OKLAHOMA REFINED MARKET STRONGER

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mercial fuel continued at 70 cents but up to the announcement of the cut in the Smackover crude prices the market was in a little better position to advance. Gas oil showed no price change.

Lubricants

Compounded oils moved at a normal rate and prices were unchanged. Bright stocks continue to be quoted from 23 to 26 cents, and the keenest kind of competition is present in the market.

Wax

Sales and shipments continue to move at a fair rate but resistance in buying is determined with any announcement of a price advance. The general quotation is 2¾ cents but refiners had hoped to raise the price to 3 cents by this time.

Late Fields

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those in the second group, a half mile west along the line of Section 1 and 2-17-14, are heavy asphalt base producers at the same depths. The Garrett Modisette and Magna wells are a mile southwest of this pool and the only completions in the extension to date. Natural Gas & Fuel Corp.'s No. 1-A Thompson, in Section 21-16-6, Richland Parish, which cratered Wednesday shortly after completion as a 65,000,000-foot gasser caught fire Sunday, blowing through as well as around the casing. It had been making more or less sand and is believed to have been fired by friction. Arrangements are under way to drill two relief wells 400 feet from the crater.

COLORADO

DENVER, Colo., Feb. 7.—Midwest Refining Co.'s No. 21 Parkinson, SE, Section 22-4-92, Iles Dome, northwestern Colorado, discovery well in the Sundance sand which came in last April with initial production of 2,600 bbls. and which has since been beaned down to 450 bbls. a day, was opened the past week to capacity to cement casing between sands and flowed 3,600 bbls. in 24 hours. Same company's No. 34 Parkinson SE SW, Section 22, has been drilled deeper into the Sundance sand and is now flowing 2,000 bbls. a day.

HUMBLE HAS 85-BBL. WELL IN ANDERSON CO.

MEXIA, Tex., Feb. 4.—The Humble Oil & Refining Co.'s No. 1 Felix Smith, Roberts Survey, in Anderson County, which made 130 bbls. of 40 gravity oil when swabbed 24 hours from sand and shale at 3,725-32 feet, revived interest in the East Central Texas area. There was no water, and not enough gas to flow the well through the casing. The hole filled up 400 feet with oil between each hourly swabbing operation. Later 2-inch tubing was run and the well made periodical flows of about 85 bbls. a day. It is understood the well will be put on the pump unless the gas pressure increases sufficiently to make the well flow steadily.

The Humble Oil & Refining Co. has abandoned its No. 3 Spencer-Clemmons, Benson Survey, in Anderson County at 4,215 feet in Georgetown lime. This test got Austin chalk from 3,465 to 3,604 feet.

In Freestone County the Roxana Petroleum Corp. abandoned its No. 1 H. C. Marshall, Marshall Survey, Freestone County, at 877 feet in cap rock or anhydrite.

In Limestoxe County, Hicks, Hoover and others' No. 1 Richardson, Bridgeman Survey was abandoned at 2,966 feet.

New work recently started in the general area includes Barney Carter's No. 1 McMasters, Pyle Survey, Kaufman County, drilling below 1,800 feet; Hunt and others' No. 1 W. Williams, Varella Survey, Limestone County, drilling below 1,025 feet; O'Byrne and others' No. 1 Hamilton, Rahm Survey, Navarro County, drilling in shale at 1,610 feet.

FREDERICK B. BERLIN DEAD

Frederick B. Berlin, for more than 20 years a producer in the Mid-Continent Field, died in Tulsa Saturday, February 4, after a long illness. He was born in Butler County, Pennsylvania, 61 years ago and had been in the oil business since his young manhood. He operated in the Cleveland, Okla., Field when it was in its hey dey and later in the Bird Creek and eastern Osage County fields. In May, 1919, he aided in the organization of the Hinderliter Tool Co., and served as a director up to the time of his death. Mr. Berlin was a successful business man and was reputed to be wealthy. The funeral was held Tuesday of this week under Masonic auspices and burial was in Rose Hill cemetery, Tulsa.

MID-CONTINENT REFINERY RUNS GREATER

(Continued from Page 50)

Name and location—	Daily Capacity	Runs Feb. 1	Runs Jan. 1
Panhandle Refining Co., Wichita Falls	4,000	2,000	3,850
Phillips Petroleum Co., Isom	2,000	1,600	1,600
Primrose Refining Co., Wichita Falls	1,500	(*)	(*)
Primtex Refining Co., Grand Prairie	2,500	500	(*)
San Angelo Refining Co., San Angelo	1,500	1,000	1,000
Simms Oil Co., Dallas	5,000	4,200	4,000
Star Refining & Producing Co., Fort Worth	1,800	(*)	300
Swastika Refining Co., Huenster	1,000	(*)	(*)
The Texas Company, Dallas	15,000	12,000	12,000
Tidal Western Refining Co., Burkburnett	3,000	2,000	2,000
Texas Pacific Coal & Oil Co., Fort Worth	6,000	2,800	2,000
Transcontinental Oil Co., Fort Worth	5,000	3,700	3,000
Waggoner Refining Co., Electra	3,400	2,500	1,900
White Eagle Oil & Refining Co., Fort Worth	4,000	(*)	(*)
Valley Refining Co., Wichita Falls	2,500	(*)	(*)
Total	179,700	89,300	101,100

*Shut down. †Operated by Magnolia Petroleum Co.

Brief Items for Petroleum Refiners

Railroads Not to Advance Rates as Provided by I. C. C.

The general rate advance authorized by the Interstate Commerce Commission in a decision announced last October applying to Mid-Continent refiners in their shipments to Western Trunk Line territory east of the Mississippi River and intermediate points west of the river will not be put into effect by the carriers according to information received in Oklahoma the first of the week. The I. C. C. decision is to become effective March 2 and some of the tariffs announcing the new rates are now available.

These tariffs show that the interested carriers have seen fit in most cases not to take advantage of the higher rates authorized by the Interstate Commerce Commission. This decision enlarged Group 3, formerly confined to Oklahoma, to include the refineries located in Central Kansas. Group 2, which formerly covered all of Kansas under the latest decision, is now confined to a small group of refineries located in southeastern Kansas and one refinery in Missouri. The commission prescribed a differential of 2 cents per hundred pounds under Group 3 for Group 2.

The destination group referred to in this decision covers the Western Trunk Line territory of Illinois, southeastern Wisconsin and intermediate territory west of the Mississippi River, including most of Missouri and the lower part of Iowa. Under the commission's decision, the carriers were authorized to raise the rates on refined oils from the new Group 3 to Chicago to 38.5 cents and 31.5 cents to St. Louis. The new tariffs, however, show that the rate to Chicago will remain at 36 cents and 29.5 cents to St. Louis. The few refiners in the new Group 2 will have a 2-cent reduction in their rates to these points.

It is understood, however, that the new rate to Peoria, Ill., will be 35.5 cents as authorized by the commission. The rate at present is 33 cents. Information was not available on Tuesday as to just what the changes would be to the intermediate points in Missouri. Some of these rates were higher than the rate to St. Louis and it is believed that they will now be reduced on a basis of the St. Louis rate.

CALIFORNIA GASOLINE SALES

California gasoline taxes for 1927 amounted to $24,443,137 and estimates of the tax collections for this year have been set at $32,000,000. The total gallonage for the year amounted to 1,017,681,662, or an increase of 12.3 per cent over that of 1926. The 17 major companies reported the following assessed gallonage for the year, the Standard Oil Co. of California leading with the Shell Co. of California ranking second.

Gasoline Sales in Gallons

Standard Oil Co.	62,602,624
Shell Co. of California	46,059,497
Union Oil Co.	34,824,751
Richfield Oil Co.	29,172,542
Associated Oil Co.	20,588,408
California Petroluem Corp.	13,887,129
Pan-American Petroleum Co.	8,052,566
General Petroleum Corp.	7,907,315
Marine Refining Corp.	6,677,530
Wilshire Oil Co., Inc.	5,314,582
Western Oil & Refining Co.	3,638,351
Seaboard Petroleum Corp.	2,853,322
Rio Grande Oil Co.	2,292,049
Hercules Gasoline Co.	2,111,446
MacMillan Petroleum Prod. Co.	2,010,885
Hancock Oil Co.	1,556,924
Seaside Oil Co.	1,474,090

PIERCE SALES MANAGER

CHICAGO, Feb. 6.—R. J. Ahsens has been appointed manager of sales for the Pierce Petroleum Corp. succeeding W. E. McEwen who recently resigned. Mr. Ahsens has been assistant manager of sales for the Pierce corporation for several months. He was formerly connected with the National Refining Co.

MAGNOLIA ANNOUNCES SALES STAFF CHANGES

DALLAS, Tex., Feb. 6.—A. C. Ebie, vice president and general sales manager of the Magnolia Petroleum Co., has been granted a year's leave of absence due to ill health. Mr. Ebie has been in charge of Magnolia sales for a number of years. During his absence E. P. Angus will be acting general sales manager.

Other changes in the Magnolia sales organization are as follows: J. L. Green, manager of the Oklahoma division, is made assistant to the general sales manager at Dallas; H. J. L. Toombs, manager of the El Paso division, is made manager of the Oklahoma division; J. H. Fasel, agent at San Antonio, is made manager of the El Paso division; S. H. Dunken is made editor of the Magnolia Oil News and placed in charge of the advertising department; J. L. Green and C. E. Farnum are made associate editors of the Magnolia Oil News; W. B. Rew is made chief clerk in the general sales manager's office.

On account of poor health, R. R. Darrah, manager of the Fort Worth division, is also granted a year's leave of absence. J. C. Stephens is appointed manager and C. W. Wofford is appointed assistant manager of the Fort Worth division.

PURE OIL CHANGES WILL AID COMPANY OPERATIONS

The recent changes made in the refinery and pipe line departments of the Pure Oil Co. will greatly facilitate those phases of the operation, according to a statement made by Henry A. Dawes, president. The company has recently dismantled its Cornplanter, Pa., refinery and made important changes in its pipe line operations in the same state. Improvements have also been made at the Marcus Hook, Pa., and Smiths Bluff, Tex., refinery of the company. Mr. Dawes' statement relative to the operations of the company follows:

"The first step was the dismantling of the Cornplanter refinery, which had become obsolete, was not advantageously located and was too small to produce good operating results, although it had been a good investment.

Refinery Rebuilt

"The next step was the entire rebuilding and enlargement of the Marcus Hook refinery along the most modern and economical lines. With the completion of the lubricating oil plant, we believe that this refinery will not be excelled in any respect by any refinery in the United States, either in the quality of its products or the economy of its operation. Its location on the Atlantic Seaboard is in the heart of the greatest market for the distribution of petroleum products in the world. As it is on deep water, the transportation by steamer of Texas and Mid-Continent oil is feasible and carried on through the operation of our steamships. It is equally accessible to the Venezuelan and South American fields.

Taps Pennsylvania Field

"In addition to this, through our pipe line to Morgantown it has a connection with the fields from which Pennsylvania oil is derived and which is available as a base for Tiolene. With the completion of the pipe line arrangements and the contemplated construction of the lubricating oil plant, it is probable that the pure Oil Co. will be the largest refiners of pure Pennsylvania lubricants in the world and an adequate supply of a base for Tiolene oil assured for a great many years to come.

"As a step in this plan, the company has disposed of those pipe lines in Pennsylvania and Ohio to the Buckeye Pipe Line Co., the National Transit Co. and the Eureka Pipe Line Co. which they parallel, and the Pure Oil Co. will shortly again put in operation its pipe line between Morgantown and Marcus Hook, which has been idle for the last few years.

Double Purpose

"This consolidation of the Pure pipe lines west of Morgantown with these companies accomplishes a double purpose in giving the refineries a larger backing in the way of crude supply, which is not of so much importance at the present time as that it will extend for a great many years the period during which this supply will be available. Putting its transportation into more concentrated ownership extends the length of time in which it will be economically possible to gather the oil from the small scattered producing wells in this territory, because it will greatly reduce all of the costs, both in machinery and duplication of facilities and particularly in the number of employes required for operation. The consolidated lines will remain in operation many years longer than would have been possible otherwise and millions of barrels of oil will be transported that it would not have been possible to gather at the higher cost of the separate operation."

DECREASE IN FUEL OIL USE IN POWER PLANTS

The use of fuel oil during 1927 in the power plants of the United States shows another substantial yearly decrease despite the abnormally low fuel oil prices prevailing throughout the greater portion of the year. Fuels in general, are gradually giving way to waterpower as a source of power, the total power produced by water now amounting to 37 per cent, an increase of 2 per cent over 1926.

Natural gas is rapidly taking the place of fuel oil in most of the plants making a change while coal shows a slight increase. The daily consumption of the various fuels for the past nine years are given below as contained in a report of the United States Division of Power Resources:

	Fuel Oil Bbls.	Gas M.cu.ft.	Coal Tons
1927	18,400	174,000	114,300
1926	25,700	139,500	113,200
1925	28,100	127,500	110,200
1924	45,700	132,600	102,500
1923	40,200	86,200	106,500
1922	36,000	74,400	93,700
1921	33,200	65,000	86,500
1920	35,900	67,500	101,400
1919	30,300	58,600	96,200

SHAFFER SALES APPOINTMENTS

CHICAGO, Feb. 6.—C. T. Fantozzi has been appointed assistant general sales manager of the Shaffer Oil & Refining Co., according to an announcement today by John L. Gray, vice president and general manager of the company. T. B. Murphy has been appointed manager of the burning oil division of the company's sales department.

REGULATING OIL IN SOAP

A small percentage of naphtha and kerosene is sold to soap manufacturers for use in making laundry soaps in which case the oil is held in the soap, acting as a solvent for grease and oil. A recent decision rendered by the Federal Trade Commission prohibits the substitution of kerosene for naphtha in soaps sold as "naphtha soaps" and further reserves the right to fix the minimum oil content in the soap before it may be called a naphtha soap. The minimum will be above 1 per cent but the court has not stated how much more than 1 per cent will be needed to comply.

REFINERY EMPLOYMENT REGISTERS DECREASE

Refinery employment in the United States, according to statistics compiled by the United States Department of Labor, continued to register a decrease both in the number of men employed and the amount of the payrolls. This month-to-month decrease has been continuous since March of this last year, reflecting the effect of relatively low refinery prices. The percentage decrease in the number of men employed in December compared with November is 1.3 per cent and the amount of earnings was .8 per cent less. Making this same comparison with December of 1926, a decrease of 16.8 per cent is shown this year in the number of men employed and the payroll decreased 16.1 per cent.

Refinery employment for December is shown as 77 per cent of normal, based on the operating plants. Seventeen per cent of the refineries are shown as operating with a full force of men while 81 per cent have curtailed operations and are carrying fewer men than ordinarily.

UTILIZING CARBON DIOXIDE

Attention is being given to the possibility of utilizing the carbon dioxide gas coming from oil wells located in Colorado and elsewhere as a refrigerant. The gas would be allowed to expand either from its natural pressure or after compressing and solidify, to take the place of ordinary ice. The carbon dioxide may thus be made cheaply, has the advantage of being much more efficient than ice and in that way cuts down the amount of space and weight needed to transport it. Another decided advantage is that it leaves no deposits, the gas passing from a solid into a gas.

REFINERY FOR SPOKANE

Plans for building a small refinery at Spokane, Wash., have been under way and it is likely a plant will be built there and will derive its crude from the Kevin-Sunburst Field in Montana. A 12-acre tract near the city limits has been secured and a process, similar to that used for more than a year at the Big West refinery at Kevin will be installed. This is known as the Landes process, invented by William Landes of Long Beach, Calif. He will be a major shareholder in the new company.

PURE GETS CONTRACT

CHICAGO, Feb 6.—The Garage Owners Oil Co. of Chicago has contracted with the Pure Oil Co. to supply the former with its motor fuel and lubricating oils. The Garage Owners Oil Co. is a co-operative organization which buys for some 82 garages in the city and immediate suburbs. The contract was originally held for several years by the Producers & Refiners Corp.

TO PURCHASE PASOTEX SHARES

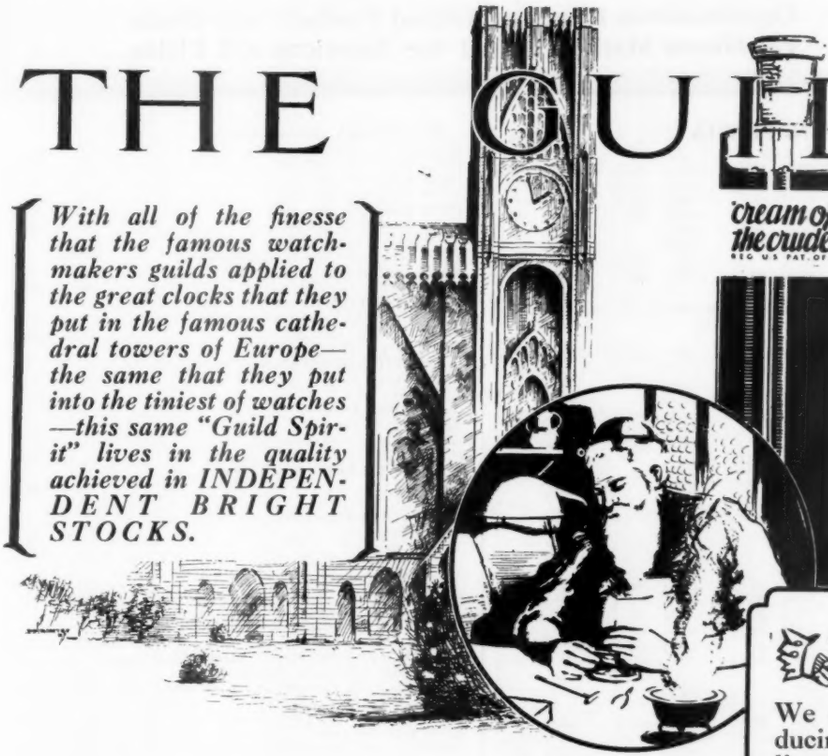
The California State Corporation Commission has granted the permit to the Standard Oil Co. of California to purchase 10,000 shares, no par value stock in the recently incorporated subsidiary of the Standard, the Pasotex Petroleum Co. The latter company is now building a 10,000-bbl. skimming plant at El Paso, Tex. The plant will operate on West Texas crude oil.

ACEWOOD LEASES STORAGE

The Acewood Petroleum Corp., Houston, Tex., has leased oil storage facilities from the Galena Signal Oil Corp. at Bayonne, N. J., amounting to 7,000,000 gallons.

THE GUILD

With all of the finesse that the famous watchmakers guilds applied to the great clocks that they put in the famous cathedral towers of Europe—the same that they put into the tiniest of watches—this same "Guild Spirit" lives in the quality achieved in INDEPENDENT BRIGHT STOCKS.



cream of the crude
REG. U.S. PAT. OFF.

SPECIAL

We are also producing a complete line of lubricating oils. Samples and specifications will be sent upon request.

INDEPENDENT *Bright Stock*

A quality Product held rigidly to our standard specifications.

SPECIFICATIONS

Gravity	23-25
Flash	530-540
Fire	600-610
Cold	15-20
Viscosity @ 210	150-160
Emulsion	O. K.
Color	1 3/16 to 1¼ T.R.
Carbon Residue	Below 2%

INDEPENDENT OIL AND GAS COMPANY

PRODUCERS AND REFINERS

KENNEDY BUILDING

TULSA. OKLA. U. S. A.

Cable Address: "Indol"

REFINERY AND CRUDE PRICES

Quotations on Principal Refined Products and Crude Petroleum Markets in All the American Oil Fields

GASOLINE AND NAPHTHA

	Feb. 7		Jan. 31		Jan. 24	
OKLAHOMA (Group 3)—						
50-52 450 endpoint	.05⅜	.05½	.05½	.05¾	.05½	.05¾
56-58 450 endpoint	.05⅜	.05½	.05½	.05¾	.05½	.05¾
58-60 450 endpoint	.05½	.05⅝	.05½	.05⅝	.05½	.05⅝
*58-60 437 endpoint (U. S. Motor)	.05¾	.06	.05¾	.06	.05⅝	.06
*60-62 400 endpoint	.06⅜	.06½	.06¼		.06¼	
*64-66 375 endpoint	.06¾	.06⅞	.06¾		.06¾	
68-70 360 endpoint	.07⅛		.07	.07⅛	.07	.07⅛
64-66 437 endpoint (blend)	.05⅞	.06	.05⅝	.05¾	.05⅝	.05¾
KANSAS—						
58-60 437 endpoint (U. S. Motor)	.06⅛	.06⅜	.06	.06¼	.05⅞	.06⅛
NORTH TEXAS—						
56-58 450 endpoint	.05⅜		.05½		.05½	
58-60 450 endpoint	.05⅝		.05½		.05½	
58-60 437 endpoint (U. S. Motor)	.05⅞	.06	.05¾	.06	.05⅝	.06
60-62 400 endpoint	.06⅜		.06⅜		.06⅜	
64-66 390 endpoint	.06⅛		.06½	.06⅝	.06½	.06⅝
64-66 375 endpoint	.06¾	.06⅞	.06¾		.06¾	
68-70 360 endpoint	.07		.07		.07	
64-66 437 endpoint (blend)	.05⅞		.05⅝		.05⅝	
NORTH LOUISIANA—						
58-60 437 endpoint (U. S. Motor)	.06¼		.06¼		.06¼	
ARKANSAS—						
58-60 437 endpoint (U. S Motor)	.06¼		.06¼		.06¼	
PENNSYLVANIA—						
52-54 Naphtha	.07½	.07¾	.07½	.07¾	.07½	.07¾
54-56 Naphtha	.07½	.07¾	.07½	.07¾	.07½	.07¾
58-60 Gasoline	.07¾	.08	.07¾	.08	.07¾	.08
60 Gasoline	.08⅛	.08¾	.08⅛	.08¾	.08⅛	.08¾
62 Gasoline	.08¾	.09	.08¾	.09	.08¾	.09
64 Gasoline	.09	.09¼	.09	.09¼	.09	.09¼
CALIFORNIA—						
58-60 437 endpoint (U. S. Motor) domestic	.07		.07		.07	
CHICAGO DISTRICT (Based on Group 3)—						
50-52 450 endpoint (Naphtha)	.05½	.05¾	.05⅝	.05¾	.05⅝	.05¾
56-58 450 endpoint	.05⅝	.05⅞	.05⅝	.05¾	.05⅝	.05¾
58-60 437 endpoint (U. S. Motor)	.05¾	.06	.05⅞	.06	.05⅝	.06
60-62 400 endpoint	.06½		.06¾	.06½	.06⅜	.06½
64-66 375 endpoint	.06⅞	.07	.06¾	.07	.06¾	.07
68-70 360 endpoint	.07⅛	.07¼	.07⅛	.07¼	.07⅛	.07¼
64-66 437 endpoint (blend)	.05¾		.05¾	.06	.05¾	

*Starting in our February 16 issue prices on these grades will be based on weighted averages.

NATURAL GASOLINE

	Feb. 7		Jan. 31		Jan. 24	
OKLAHOMA (Group 3)—						
Grade A, 72-79.9, 375 e p., rec. 90%	.05¼	.05½	.05⅝		.05½	
Grade AA, 80-87.9, 375 e.p., rec. 90%	.05¼	.05⅜	.05½		.05⅜	.05½
Grade B, 76-83.9, 375 e.p., rec. 85%	.04⅜	.04¾	.04¾		.04⅜	.04½
Grade BB, 84-92, 375 e p., rec. 85%	.04⅝	.04¾	.04½	.04⅝	.04¼	
Grade C, 80-92, 375 e.p., rec. 78%	.04½	.04⅝	.04¼	.04⅜	.03⅞	.04
NORTH TEXAS—						
Grade A, 72-79.9, 375 e.p., rec. 90%	.05¼		.05⅝		.05½	
Grade AA, 80-87.9, 375 e.p., rec 90%	.05¼		.05½		.05⅜	.05½
Grade B, 76-83.9, 375 e.p., rec. 85%	.04⅝	.04¾	.04¾		.04¼	.04⅜
Grade BB, 84-92, 375 e.p., rec. 85%	.04⅝		.04½		.04¼	
Grade C, 80-92, 375 e.p., rec. 78%	.04½		.04¼	.04⅜	.03¾	.04
NORTH LOUISIANA—						
Grade AA, 80-87, 375 e.p., rec. 90%	.05½		.05⅝	.05⅞	.05½	.05¾
Grade BB, 84-92, 375 e.p., rec. 85%	.05¼		.05½		.05¼	.05½
Grade C, 80-92, 375 e.p., rec. 78%	.05⅛		.05¼	.05½	.05	
CALIFORNIA—						
75-85, 375, 390 endpoint	.07½	.08	.07½	.08	.07½	.08
CHICAGO DISTRICT (Based on Group 3)—						
Grade A, 72-79.9, 375 e.p, rec. 90%	.05¼	.05½	.05⅝		.05½	
Grade AA, 80-87.9, 375 e.p., rec. 90%	.05¼		.05½		.05⅝	.05½
Grade B, 76-83.9, 375 e.p., rec. 85%	.04⅝	.04¾	.04¾		.04⅜	
Grade BB, 84-92, 375 e.p., rec. 85%	.04⅝		.04½		.04¼	
Grade C, 80-90, 375 e.p., rec. 78%	.04½		.04¼	.04⅜	.03⅞	.04

Note: All natural gasoline, except California, is noncorrosive.

BURNING OIL

	Feb. 7		Jan. 31		Jan. 24	
KANSAS						
41-43 water white Kerosene	.04⅜	.04½	.04⅜	.04½	.04½	
OKLAHOMA (Group 3)—						
41-43 water white Kerosene	.04¼		.04⅛	.04⅜	.04¼	.04⅜
42-44 water white Kerosene	.04⅝	.04¾	.04⅝	.04¾	.04¾	
NORTH LOUISIANA—						
41-43 prime white Kerosene	.04¾		.04¾		.05	
NORTH TEXAS—						
41-43 water white Kerosene	.04¼		.04⅛		.04¼	.04¼
40-42 water white Kerosene	.04		.04		.04⅛	
ARKANSAS—						
41-43 water white Kerosene	.04¾		.04¾		.05	
PENNSYLVANIA—						
43 Kerosene prime white	.06	.06⅛	.06	.06⅛	.06	.06¼
45 Kerosene water white	.06¼	.06⅜	.06¼	.06⅜	.06¼	.06½
46 Kerosene water white	.06¼	.06½	.06¼	.06½	.06½	.06¾
47 Kerosene water white	.06½	.06¾	.06½	.06¾	.06⅞	.07
300 Mineral Seal	.07	.07¼	.07	.07¼	.07	.07¼
CALIFORNIA—						
38-40 water white Kero. (high-burning test)	.05½		.05½		.05½	
Engine distillate, 43-45, 445 endpoint	.06½	.07	.06½	.07	.06½	.07
Engine distillate, 42-44, 480 endpoint	.06¼	.06¾	.06¼	.06¾	.06¼	.06¾
CHICAGO DISTRICT (Based on Group 3)—						
41-43 water white Kerosene	.04¼	.04¼	.04¼	.04⅜	.04¼	.04⅜
42-44 water white Kerosene	.04¾		.04¾		.04¾	.04⅞

FUEL OIL

	Feb. 7		Jan. 31		Jan. 24	
KANSAS—						
18-20 Fuel Oil, per bbl.	.80	.85	.77½	.82½	.77½	.82½
22-26 Fuel Oil, per bbl.	.82½	.87½	.80	.85	.80	.85
32-36 Gas Oil	.02⅝		.02½	.02⅝	.02½	.02⅝
38-40 Distillate	.03¼	.03⅜	.03¼	.03⅜	.03¼	.03⅜
OKLAHOMA (Group 3)—						
Below 18 Fuel Oil, per bbl.	.70	.75	.70	.75	.70	.75
18-22 Fuel Oil, per bbl.	.75	.77½	.75	.77½	.75	.77½
22-26 Fuel Oil, per bbl.	.77½	.80	.77½	.80	.77½	.80
24-26 Fuel Oil, per bbl.	.80	.85	.80	.85	.80	.85
26-30 Fuel Oil, per bbl.	.85	.87½	.85	.87½	.85	.87½
28-30 Fuel Oil, per bbl.	.90	.95	.90	.95	.90	.95
32-36 Gas Oil (dark)	.02⅜		.02⅜		.02⅜	
32-36 Gas Oil (straw overhead)	.02½		.02½		.02½	
36-38 Distillate	.03	.03¼	.03	.03¼	.03	.03¼
38-40 Straw Distillate	.03	.03½	.03	.03½	.03	.03½
NORTH TEXAS—						
24-26 Fuel Oil (sellers' cars), per bbl.	.75	.80	.75	.80	.75	.80
32-36 Gas Oil (straw)	.02¼	.02⅜	.02¼	.02⅜	.02¼	.02⅜
38-40 Straw Distillate	.03		.03		.03	
NORTH LOUISIANA—						
18-20 Fuel Oil, per bbl.	97½	1.00	.97½	1.00	.97½	1.00
32-36 Gas Oil	.03	.03¼	.03⅛	.03¼	.03⅛	.03¼
ARKANSAS—						
33-36 Distillate	.03½	.03¾	.03½	.03¾	.03½	.03¾
32-36 Gas Oil (straw)	.02¾	.03	.02¾	.03	.02¾	.03
16-22 Refinery Fuel Oil, per bbl	.97½	1.00	.95	.97½	.95	.97½
GULF COAST (South Texas)—						
Gas Oil	.04¼	.04½	.04¼	.04½	.04¼	.04½
Fuel Oil, per bbl.	1.25		1.25		1.25	
PENNSYLVANIA—						
30-34 Fuel Oil	.04¾	.05	.04¾	.05	.04¾	.05
36-40 Fuel Oil	.04⅞	.05	.04⅞	.05	.04½	.04⅝
CALIFORNIA—						
33-36 Distillate	.03½	.03¾	.03½	.03¾	.03½	.03¾
27-32 Distillate	.02½	.03	.02½	.03	.02½	.03
*15-20 Fuel Oil, Bunker (at tide water)	1.00		1.00		1.00	
15-20 Fuel Oil (cargo lots), per bbl.	.90		.90		.90	
27 plus Diesel, per bbl.	1.15	1.19	1.15	1.19	1.15	1.19
CHICAGO DISTRICT (Based on Group 3)—						
24-26 Fuel Oil (sellers' cars) Group 3, bbl.	.82½	.85	.80	.85	.80	.82½
22-26 Fuel Oil (sellers' cars) Group 3, bbl.	.80	.82½	.77½	.82½	.75	.80
18-22 (Group 3), per bbl.	.77½	.80	.72½	.77½	.72½	.75
16-20 Smackover, per bbl.	1.00	1.05	1.00		1.00	1.02½
32-36 Gas Oil (zero)	.02¾	.03	.02¾	03	.02¾	.03
32-36 Gas Oil (industrial)	.02½	.02⅝	.02½	.02⅝	.02½	.02⅝
36-38 Distillate	.03	.03¼	.03	.03¼	.03⅛	.03¼
38-40 Straw Distillate	.03¼	.03⅜	.03¼	.03⅜	.03¼	.03⅜

*Bunkers.

LUBRICATING OIL AND WAX

	Feb. 7		Jan. 31		Jan. 24	
OKLAHOMA (Group 3)—						
100 vis., 2 color, 20-25 cold test	.06¼	.06½	.06¼	.06½	.06¼	.06½
100 vis., 3 color, 20-25 cold test	.06	.06¼	.06	.06¼	.06	.06¼
150 vis., 3 color, 20-25 cold test	.08¼	.08½	.08¼	.08½	.08¼	.08½
150 vis., 4 color, 20-25 cold test	.08	.08¼	.08	.08¼	.08	.08¼
180 vis., 3 color, 23-28 cold test	.09⅜	.10	.09⅜	.10	.09⅜	.10
180 vis., 4 color, 23-28 cold test	.09¼	.09¾	.09¼	.09¾	.09¼	.09¾
180 vis., 5 color, 23-28 cold test	.09⅛	.09½	.09¼	.09½	.09⅛	.09½
200 vis., 3 color, 23-28 cold test	.09½	.10½	.09½	.10½	.09½	.10¼
200 vis., 4 color, 23-28 cold test	.09⅜	.10¼	.09⅜	.10¼	.09⅜	.10¼
200 vis., 5 color, 23-28 cold test	.09¼	.10	.09¼	.10	.09¼	.10
240 vis., 3 color, 25-30 cold test	.13¾	.14	.13¾	.14	.13¾	.14
240 vis., 4 color, 25-30 cold test	.13¼	.13½	.13¼	.13½	.13¼	.13½
240 vis., 5 color, 25-30 cold test	.12¼	.12½	.12¼	.12½	.12¼	.12½
280 vis., 3 color, 25-30 cold test	.15½	.16	.15½	16	.15½	.16
280 vis., 4 color, 25-30 cold test	.15	.15½	.15	.15½	.15	.15½
280 vis., 5 color, 25-30 cold test	.14	.14½	.14	.14½	.14	.14½
Cylinder Stocks:						
600, steam refined, light green	.08	.09	.08	.09½	.08	.09½
600, steam refined, dark green	.06½	.07	.07	.07½	.07	.07½
190-200 vis. @ 210 Bright Stock	.30	.32	.30	.32	.30	.32
150-160 vis. @ 210 Bright Stock	.23	.25	.23	25	.23	.25
Waxes:						
124-126 White Crude Scale Wax	.02¾		.02¾		.02⅝	
PENNSYLVANIA—						
34 Neutral	.07½	.07¾	.07½	.07¾	.07½	.07¾
34 Sundebloom	.07¾	.08	.07¾	.08	.07¾	.08
36 Miners' Neutral	.06½	.06¾	.06½	.06¾	.06½	.06¾
150, 3 color	.26½	.27	.26½	.27	.26½	.27
180, 3 color	.30	.30½	.30	.30½	.31	.31½
200, 3 color	.32	.32½	.32	.32½	.32	.32½
220, 3 color	.34½	.35	.34½	.35	.34½	.35
600, steam refined	.09	.09½	.09	.09½	.09	.09½
635, steam refined	.10	.10½	.10	.10½	.10	.10½
650, steam refined	.10½	.11	.10½	.11	.10½	.11
600, Pennsylvania flash	.15	.16	.15	.16	.15	.16
*550, E filtered	.15	.15½	.15	.15½	.15¾	.16
*600, E filtered	.16	.16½	.16	.16½	.16½	.17
600, E filtered	.15	.15½	.15	.15½	.15	.15¾
600, D filtered	.24½	.25	.24½	.25	.24½	.25
550, E filtered	.15½	.16	.15½	.16	.15½	.16
550, D filtered	.21½	.22	.21½	.22	.21½	.22
Pennsylvania Bright Stock	.27½	.28	.27½	.28	.28½	.29
†122-124 White Crude Scale Wax	.03	.03⅛	.03	.03⅛	.03	.03⅛
124-126 White Crude Scale Wax	.03	.03⅛	.03	.03⅛	.03	.03⅛

*At Warren, Pa. †At New York.

GULF COAST (South Texas)—						
No. 2 color, 100 vis., pale oil	.06½	.07½	.06½	.07½	.06½	.07½
No. 3 color, 200 vis., pale oil	.09	.09½	.09	.09½	.09	.09½
No. 3 color, 300 vis., pale oil	.10½	.11½	.10½	.11½	.10½	.11½
No. 3½ color, 500 vis., pale oil	.12	.13	.12	.13	.12	.13
No. 4 color, 750 vis., pale oil	.14	.15	.14	.15	.14	.15
No. 5 to 6 color, 200 vis., red oil	.07½	.08	.07½	.08	.07½	.08
No. 5 to 6 color, 300 vis., red oil	.08½	.09	.08½	.09	.08½	.09
No. 5 to 6 color, 500 vis., red oil	.09½	.10½	.09½	.10½	.09½	.10½
No. 5 to 6 color, 750 vis., red oil	.12	.12½	.12	.12½	.12	.12½
No. 2½ color, 200 vis., pale filtered	.11½	.12	.11½	.12	.11½	.12
No. 2½ color, 300 vis., pale filtered	.13	.13½	.13	.13½	.13	.13½
No. 2½ color, 500 vis., pale filtered	.14	.15	.14	.15	.14	.15
No. 2½-3 color, 750 vis., pale filtered	.17½	.19	.17½	.19	.17½	.19

REFINERY AND CRUDE PRICES

Quotations on Principal Refined Products and Crude Petroleum Markets in All the American Oil Fields

CALIFORNIA—						
130 vis., 2½-3 color	.09	.10	.09	.10	.09	.10
200 vis., 2½-3 color	.10	.10½	.10	.10½	.10	.10½
300 vis., 3-3½ color	.10½	.11	.10½	.11	.10½	.11
350 vis., 3½-4 color	.11	.12	.11	.12	.11	.12
400 vis., 3½-4 color	.13	.14	.13	.14	.13	.14
Red Neutral:						
200 vis., 4½-5 color	.08½	.09	.08½	.09	.08½	.09
300 vis., 5-6 color	.09	.09½	.09	.09½	.09	.09½
400 vis., 5-6 color	.11	.11½	.11	.11½	.11	.11½
500 vis., 4½-5 color	.11½	.12	.11½	.12	.11½	.12
500 vis., 5-6½ color	.11	.11½	.11	.11½	.11	.11½
600 vis., 6 plus color	.12	.12½	.12	.12½	.12	.12½

Note: Bright Stocks are not manufactured commercially on the Pacific Coast.

NEW YORK (BAYONNE) REFINERY PRICES

	Feb. 7	Jan. 31	Jan. 24
Gasoline, U. S. Motor, 58-60 437	.08¼	.08¼	.08¼
Kerosene, water white, 41-43	.07½	.07½	.07½
*Fuel Oil, bunker "C," 14-16, per bbl.	1.35	1.35	1.35
*Fuel Oil, Diesel, 28-30, per bbl.	2.10	2.10	2.10
Gas Oil, 28 plus	.05½	.05½	.05½
25 pale Paraffin Oil	.12	.12	.12
28 pale Paraffin Oil	.07	.07	.07
285 red Paraffin Oil	.11½	.11½	.11½
250 red Paraffin Oil	.10½	.10½	.10½
225 red Paraffin Oil	.09½	.09½	.09½
200 red Paraffin Oil	.09	.09	.09
Refined Wax:			
120-122 a.m.p., per lb.	.04	.03⅞	.03⅞
125-127 a.m.p., per lb.	.04¼	.04	.04
130-132 a.m.p., per lb.	.04¾	.04½	.04½
135-137 a.m.p., per lb.	.05½	.05¼	.05¼
Petrolatum, in bbls., carload lots, per lb:			
Dark green	.02	.02	.02
Amber	.03⅜	.03⅜	.03⅜
Extra amber	.03¾	.03¾	.03¾
Cream	.06½	.06½	.06½
Lily White	.08⅜	.08⅜	.08⅜
Snow White	.09⅜	.09⅜	.09⅜

*Lighterage, 6.5c a barrel extra.

NEW YORK (BAYONNE) EXPORT PRICES

	Feb. 7	Jan. 31	Jan. 24
Gasoline, U. S. Motor, 58-60 437, in cases	.2365	.2365	.2365
Kerosene, standard white, in cases	.1690	.1690	.1690
Kerosene, water white, in cases	.1790	.1790	.1790
600, steam refined cylinder stock, in bbls.	.17	.17	.17
635, steam refined	.19	.19	.19
650, steam refined	.20	.20	.20
600, Pennsylvania flash	.23	.23	.23
630, Pennsylvania flash	.35	.35	.35
600, Warren E	.25	.25	.25
600, Oil City E	.24	.24	.24
Light 135 Bright Stock	.40	.40	.40
Dark 135 Bright Stock	.38	.38	.38

LOS ANGELES EXPORT PRICES

	Feb. 7		Jan. 31		Jan. 24	
Kerosene, water white	.04½	.05	.04½	.05	.04½	.05
U. S. Motor Gasoline, 53-55 437 e.p.	.06	.06⅛	.06	.06⅛	.06	.06⅛

CALIFORNIA CRUDE OIL PRICES
Standard Oil Co.-Union Oil Co. (Effective April 1, 1927)*

Gravity—	Fullerton, Seal Beach, Long Beach, Huntington Beach, Richfield, Rosecrans-Dom'guez, Torrance-Inglewood [1]	Whittier, La Habra, Montebello [2]	Kern River, Newhall-McKittrick, Midway-Sunset, Elk Hills, Lost Hills, Belridge, Buena Vista Hills [3]	Coyote [4]	Santa Fe Springs [5]	Coalinga [6]	Wheeler Ridge [7]	Santa Maria, Ventura, Orcutt, Salt Lake [8]
14°	.85	.85	.75	.85	....	.75	.75	.85
15°	.85	.85	.75	.85	....	.75	.75	.85
16°	.85	.85	.75	.85	....	.75	.75	.85
17°	.85	.85	.75	.85	....	.75	.75	.85
18°	.85	.85	.75	.85	....	.75	.75	.85
19°	.85	.85	.75	.85	....	.75	.75	.85
20°	.85	.85	.77	.85	....	.76	.76	.85
21°	.86	.85	.79	.86	.85	.77	.77	.85
22°	.87	.85	.81	.87	.85	.78	.78	.85
23°	.88	.85	.83	.88	.85	.79	.79	.85
24°	.89	.85	.85	.89	.85	.80	.80	.85
25°	.90	.86	.87	.90	.86	.81	.81	.86
26°	.92	.87	.89	.91	.87	.82	.82	.87
27°	.94	.88	.91	.92	.88	.85	.83	.88
28°	.96	.89	.93	.93	.89	.87	....	.89
29°	.98	.90	.96	.94	.91	.89	....	.91
30°	1.00	.91	.99	.95	.93	.91	....	.93
31°	1.03	....	1.02	....	.95	.93	....	.95
32°	1.06	....	1.05	....	.97	.95	....	.97
33°	1.09	....	1.08	....	.99	.97	....	.99
34°	1.12	....	1.11	....	1.01	.99	....	1.01
35°	1.15	....	....	....	1.03	1.01	....	1.03
36°	1.18	....	....	....	1.06	....	....	1.06
37°	1.21	....	....	....	1.09	....	....	1.09
38°	1.24	....	....	....	1.12	....	....	1.12
39°	1.27	....	....	....	1.15	....	....	1.15
40°	1.30	....	....	....	....	....	....	....
41°	1.33	....	....	....	....	....	....	....
42°	1.36	....	....	....	....	....	....	....

*Column 1—Long Beach, Seal Beach and Huntington Beach crudes, 14 to 32 degrees, inclusive; Richfield and Fullerton, 14 to 30 degrees; Torrance and Inglewood, 14 to 28 degrees; Dominguez, 24 to 42 degrees. Rosecrans crude ranges from 14 to 42 degrees, but only Union Oil Co. posts below 24 degrees.

Column 2—Whittier crude, 14 to 22 degrees; Montebello, 14 to 30 degrees.

Column 3—Kern River, Newhall and McKittrick, 14 to 19 degrees; Midway-Sunset, Buena Vista and Elk Hills, 14 to 33 degrees; Lost Hills and Belridge, 14 to 34 degrees.

Column 8—Salt Lake, 14 to 19 degrees, inclusive; Santa Maria, 14 to 30 degrees; Ventura and Orcutt, 14 to 39 degrees. Posted by Union Oil Co.

CRUDE OIL GRAVITY OIL TABLE

Gravity—	Okla., Kans., N. & C. Tex., La.-Ark.	[2]Smackover, Ark.	[3]Stephens, Ark.	Gray County [4](Texas Panhandle)	Crane, Upton, [5]Pecos, Crockett Counties (West Texas)	[6]Salt Creek, Wyo.	Grade B & Light [7]Crude (G. Coast)	[8]Somerset, (South Central Texas)
24 and above	....	.90	....	....	....	....	....	....
Below 24	....	.75	....	....	....	....	....	....
Below 25	....	....	....	....	....	....	1.15	....
25 to 25.9	....	....	....	....	....	....	1.17	....
Below 26	....	....	....	....	.60	....	....	....
26 to 26.9	....	....	....	....	.60	....	1.19	....
27 to 27.9	....	....	....	....	.60	....	1.21	....
Below 28	(*)	....	1.00	....	....	....	....	....
28 to 28.9	1.12	....	1.02	.80	.60	....	1.23	....
29 to 29.9	1.14	....	1.04	.82	.60	1.14	1.25	....
30 to 30.9	1.16	....	1.06	.84	.60	1.16	1.27	....
31 to 31.9	1.18	....	1.08	.86	.60	1.18	1.29	....
32 to 32.9	1.20	....	1.10	.88	.60	1.20	1.31	1.05
33 to 33.9	1.22	....	....	.90	.60	1.22	1.33	1.07
34 to 34.9	1.24	....	....	.92	.60	1.24	1.35	1.09
35 to 35.9	1.26	....	....	.94	.60	1.26	1.37	1.11
36 to 36.9	1.28	....	....	.96	.60	1.28	....	1.13
37 to 37.9	1.30	....	....	.98	....	1.30	....	1.15
38 to 38.9	1.32	....	....	1.00	....	....	....	1.17
39 to 39.9	1.34	....	....	1.02	....	....	....	....
40 to 40.9	1.36	....	....	1.04	....	....	....	....
41 to 41.9	1.38	....	....	1.06	....	....	....	....
42 to 42.9	1.40	....	....	1.08	....	....	....	....
43 to 43.9	1.42	....	....	1.10	....	....	....	....
44 to 44.9	1.44	....	....	1.12	....	....	....	....
45 to 45.9	1.46	....	....	....	....	....	....	....
46 to 46.9	1.48	....	....	....	....	....	....	....
47 to 47.9	1.50	....	....	....	....	....	....	....
48 to 48.9	1.52	....	....	....	....	....	....	....
49 to 49.9	1.54	....	....	....	....	....	....	....
50 to 50.9	1.56	....	....	....	....	....	....	....
51 to 51.9	1.58	....	....	....	....	....	....	....
52 and above	1.60	....	....	....	....	....	....	....

Column 1—Magnolia Petroleum Co. posted new schedule September 14, making price below 30 gravity $1.05 per barrel, with 2 cents increase per degree higher in gravity, taking 30-30.9 gravity at $1.16 as basis, with a top price of $1.60 for 52 and above.

Oklahoma—Prairie Oil & Gas Co., Sinclair Oil & Gas Co., Gypsy Oil Co., March 12; Carter Oil Co., The Texas Company, March 14.

North Central Texas—[Including Ranger, Mexia, Powell, Richland, Wortham, Lytton Springs (Southwest Texas), Iatan and Panola (Magnolia only. Iatan posted on flat price of $.93 by Magnolia on January 14, 1928), Currie, Nocona, Moran and Corsicana light]; Texas, Prairie, Sinclair and Gulf, March 12; The Texas Company, Humble Oil & Refining Co., March 14.

Kansas—Prairie, Sinclair, March 12; Carter, Texas, March 14.

Arkansas and North Louisiana—[Caddo, Bull Bayou, Crichton, De Soto, Haynesville, Homer and El Dorado only]; Standard Oil Co. of Louisiana, March 14; The Texas Company, March 14; Magnolia Petroleum Co., Pine Island, Haynesville and Bull Bayou, El Dorado, Gulf Pipe Line Co., March 14.

Column 2—February 6, Louisiana Oil Refining Co. February 7, Standard Oil Co. of Louisiana.

Column 3—Atlantic Oil Producing Co., March 14.

Column 4—Humble Oil & Refining Co. and Gulf Pipe Line Co., March 14. On August 23 Magnolia Petroleum Co. posted flat 75 cents.

Column 5—Humble Oil & Refining Co., August 23; Kay County Gas Co., Magnolia Petroleum Co., and Gulf Pipe Line Co., August 24.

Column 6—Midwest Refining Co., March 13. All crude over 37 gravity, $1.30 per barrel.

Column 7—Humble Oil & Refining Co. and other major buyers (schedule ends "35 and above"), March 14, with exception of Magnolia Petroleum Co., which stops at 31 degrees gravity. Sun Pipe Line Co. posts 2 cents differential for each degree above 35 gravity and $1.47 for 40 gravity and above.

Column 8—Grayburg Pipe Line Co. and Pioneer Oil & Refining Co., April 7.

*Prices for crude below 28 gravity; Oklahoma, Kansas and Texas, Magnolia Petroleum Co., $1.10, March 12; Arkansas, North Louisiana, March 14. Other companies, 2 cents less for each degree, with exception of Humble Oil & Refining Co., which pays 90 cents for crude below 25 degrees gravity, effective November 16.

CRUDE OIL PRICES

OKLAHOMA, KANSAS, NORTH AND EAST CENTRAL TEXAS

*Corsicana heavy (March 14, 1927)	$1.00
Other fields	See gravity table

*Posted by Magnolia Petroleum Co.

TEXAS PANHANDLE

*Carson County	$ .75
*Hutchison County	.75
*Wheeler County	.75
Gray County	See gravity table

*Humble Oil & Refining Co.
Magnolia Petroleum Co., Gulf Pipe Line Co., and Kay County Gas Co., August 23.

*Iatan	Same as North Texas
Crane-Upton-Crockett	See gravity table
†Glasscock	.60
†Chalk	.80

*Includes Howard County and Westbrook Fields. Kay County Gas Co. pays $1.05 for Howard County crude, effective May 21.
†Magnolia Petroleum Co., Jan. 14, 1928.

ARKANSAS-NORTH LOUISIANA

Cotton Valley (Feb. 7)	$ .75
Bellevue (Feb. 24, 1927)	1.20
Urania (Nov. 15, 1927)	.75
East El Dorado (Sept. 20)	.90
Other fields	See gravity table

Note—Cotton Valley and Bellevue, Standard Oil Co. of Louisiana, Louisiana Oil Refining Co., Gulf Refining Co. and Magnolia Petroleum Co.; Urania, Louisiana Oil Refining Corp.; East El Dorado, Magnolia Petroleum Co., Gulf Refining Co.

GULF COAST

(Goose Creek, Hull, Liberty, West Columbia, Orange, Boling, Sour Lake, Humble, High Island, Pierce Junction and Spindletop.)

‡Grade A (March 14)	$1.20
Grade B	See gravity table
*Jennings, La. (March 14)	$1.05
†Saratoga, Batson, Dayton (March 14, 1927)	$1.20
‡Markham (March 14)	1.00

*Gulf Pipe Line Co. †Sun Pipe Line Co. ‡Humble Oil & Refining Co. and other major buyers. §The Texas Company.

SOUTH CENTRAL AND SOUTHWESTERN TEXAS

*Luling (May 5)	$1.00
†Mirando (March 14)	1.00
Rockdale-Minerva (April 15):	
Below 38 gravity	1.25
38-38.9 gravity	1.27
39-39.9 gravity	1.29
40 and above	1.31
*Thrall	....
Callihan (May 15)	1.75
Lytton Springs (Lockhart)	See gravity table
Somerset	See gravity table

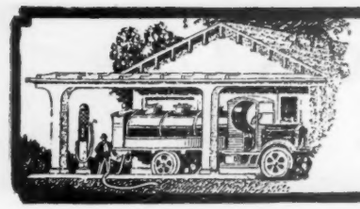
*Posted by Magnolia Petroleum Co. Thrall prices same as North Central Texas less 19½ cents per cwt. freight.
†Magnolia Petroleum Co., Humble Oil & Refining Co., Crown Central Pipe Line Co.

ROCKY MOUNTAIN STATES
Ohio Oil Co.-Midwest Refining Co.
(Effective March 14)

Rock Creek, Wyo. (March 12)	$1.25
Salt Creek	See gravity table
Big Muddy (March 12)	$1.25
Mule Creek (May 1)	1.10
Grass Creek, heavy	.90
Grass Creek, light	1.32
Elk Basin (March 12)	1.32
Lance Creek (March 12)	1.32
Poison Spider	....
Notches	.65
Rex Lake (February 22)	1.10
Osage	1.32
Lost Soldier (contract)	.95
Greybull-Torchlight	1.32
Hamilton Dome	.85
Cat Creek (Mont.)	1.32
Sunburst (Mont.) (Jan. 25, 1928)	1.50
Artesia (March 12)	1.00
Hogback (N. Mex.) (March 14)	1.32

Note: Salt Creek, Osage, Cat Creek, Grey-

(Continued on Page 254)



TANK WAGON MARKETS

Tank wagon quotations for gasoline and kerosene in United States as furnished by the larger marketing concerns Feb. 7.

ALL TANK WAGON AND SERVICE STATION QUOTATIONS INCLUDE TAXES

STANDARD OIL CO. (INDIANA)

	Gasoline			Kero.
	Tank wagon	Service station	Incl'd's tax	tank wagon
Chicago dist.	16.0	18.0	2.0	12.0
Decatur, Ill.	15.5	17.5	2.0	12.1
E. St. Louis	15.1	17.35	2.0	11.2
Joliet	16.4	18.4	2.0	12.3
Peoria	14 0	14 0	2.0	12 1
Quincy	16.2	18.2	2.0	11.9
Davenport, Ia.	15.5	17.5	3.0	12.3
Des Moines	15.9	17.9	3.0	12.3
Keokuk	17.5	19.5	3.0	12.3
Sioux City	17.1	19.1	3.0	11.9
Duluth, Minn.	15.5	17.5	2.0	12.9
Minneapolis	15.0	15 0	2 0	12 9
Mankato	14.1	16.1	2.0	12.7
La Crosse, Wis.	17.2	19.2	2.0	13.0
Milwaukee	16.1	18.1	2.0	11.9
Madison	16.3	18.3	2.0	12.1
Detroit, Mich.	15.8	17.8	3.0	13.7
Grand Rapids	17.7	19.7	3.0	13.6
Saginaw	17.9	19.9	3.0	13.8
Evansville, Ind.	17.0	19.0	3.0	13.0
Ft. Wayne	16.4	17.4	3.0	13.4
Indianapolis	15.2	16.2	3.0	12.2
South Bend	17.4	17.4	3.0	13.4
Fargo, N. D.	15.0	17.0	2.0	14.9
Huron, S. D.	19.5	21.5	4.0	13.9
Sioux Falls	16.0	18.0	4.0	13.4
*K. C., Mo.	14.9	16.9	3.0	10.6
*Springfield	16.8	18.8	3.0	11.5
*St. Louis	15.6	17.9	2.5	11.3
*St. Joseph	14.5	16.5	3.0	11.2
Wichita, Kans.	12 8	14 8	2 0	10 8
Bartlesville, Ok.	15.8	17.8	3.0	10.8

NAPHTHAS

	Tank wagon	Tank car
Oleum spirits	14.7	9.5
V. M. & P. naphtha	16.2	11.0
Cleaner's naphtha	13.0	12.0
Stanisol	19.0	12.5

Tank wagon prices f.o.b. Chicago; tank car prices f.o.b. Whiting.

STANOLIND FURNACE OIL IN CHICAGO

Less than 100 gallons	9.0
100 to 799 gallons	8.0
800 or more gallons	7.5

Note—Outside Chicago furnace oil discount of 1 cent per gallon is given on deliveries of 100 to 349 gallons and 1½ cents on deliveries of 350 gallons or more.

Tank wagon prices of gasoline subject to discount of 1 cent a gallon on dumps of 50 gallons or more throughout territory except Chicago district where discount applies only to dumps of 100 gallons. Kerosene subject to 1 cent discount on dumps of 50 gallons or more.

Outside the Chicago district, the following quantity discount schedule is in effect on monthly tank wagon deliveries of gasoline: 6,000 gallons or more, 1½ cents; 10,000 gallons or more, 2 cents; 15,000 gallons or more, 3 cents. These discounts include the 1 cent allowed on dumps of 50 gallons or more at one delivery.

Within the Chicago district, the following quantity discount schedule is in effect on tank wagon deliveries of gasoline: 750 to 2,000 gallons, one-half cent; 2,000 to 3,000 gallons, three-fourths cent; 3,000 to 6,000 gallons, 1 cent; 6,000 to 10,000 gallons, 1½ cents; 10,000 to 15,000 gallons, 2 cents; 15,000 gallons or more, 3 cents. These discounts are in addition to the special discount of 1 cent on dumps of 100 gallons or more at one delivery.

If the quantity bought during the year is equal to or exceeds 12 times the agreed monthly quantity, the discount is paid or credited on the entire quantity at the close of the term less the monthly payments made during the year.

*State tax 2 cents; remainder city tax.

OHIO

Standard Oil Co. (Ohio)

	Gasoline			Kero.
	Tank wagon	Service station	Incl'd's tax	tank wagon
All Ohio points	17.0	19.0	3.0	14.5

SOUTHWESTERN DISTRICT

Magnolia Petroleum Co.*

	Gasoline			Kero.
	Tank wagon	Service station	Incl'd's tax	tank wagon
Dallas, Tex.	12 0	15 0	3 0	11.0
Fort Worth	14.0	16.0	3.0	10.0
Houston	13.0	15.0	3.0	15.0
San Antonio	13.0	15.0	3.0	10.0
El Paso	14.0	15.0	3.0	16.0
Texarkana	15.0	13.0	3.0	12.0
Muskogee, Ok.	15.0	13.0	3.0	10.0
Okla. City	13.0	14.0	3.0	10.0
Tulsa	13.0	14.0	3.0	10.0
Ft. Smith, Ark.	14.0	17.0	5.0	10.0
Little Rock	16.0	16.0	5.0	11.0

*The following is the schedule of discounts on quantity gasoline sales adopted by the Magnolia Petroleum Co. in Oklahoma: Over 750 gallons a month, one-half cent; over 2,000 gallons, three-quarters cent; over 3,000 gallons, 1 cent; over 4,500 gallons, 1¼ cents; over 6,000 gallons, 1½ cents; over 8,000 gallons, 1¾ cents; over 10,000 gallons, 2 cents. If the quantity bought during the year is 12 times the monthly agreed purchases, the discount will be paid or credited on the entire quantity for the year less any monthly purchases.

The schedule on service station deliveries is: Over 200 gallons a month, 1 cent; over 300 gallons a month, 1¼ cents; over 400 gallons, 1½ cents; over 500 gallons a month, 1¾ cents; over 600 gallons, 2 cents. The same rule applies for annual purchases in the tank wagon discounts.

CENTRAL SOUTH DISTRICT

Standard Oil Co. (Louisiana)

	Gasoline			Kero.
	Tank wagon	Service station	Incl'd's tax	tank wagon
*N. Orleans, La.	15.5	18.5	3.0	14.0
Baton Rouge	14.0	17.0	2.0	12.5
Alexandria	15.0	18.0	2.0	14.0
La Fayette	15.0	18.0	2.0	13.5
Lake Charles	15.5	18.5	2.0	14.0
Shreveport	15.5	18.5	2.0	13.0
Kn'xville, T'nn.	19.5	22.5	3.0	15.0
Memphis	17.0	18.5	3.0	14.0
Chattanooga	19.5	22.5	3.0	15.0
Nashville	18.0	21.0	3.0	15.0
Bristol	19.0	22.0	3.0	14.0
Lit. Rock, Ark.	16.0	16.0	5.0	11.0

*Tax of 3 cents includes city tax of 1 cent.
*Louisiana kerosene prices include 1-cent state tax and 1-cent parish tax.

SOUTHERN DISTRICT

Standard Oil Co. (Kentucky)

	Gasoline			Kero.
	Tank wagon	Service station	Incl'd's tax	tank wagon
Atlanta, Ga.	17.0	19.0	4.0	14.0
Augusta	19.0	22.0	4.0	16.5
Macon	16.0	19.0	4.0	13.5
Savannah	17.0	19.0	4.0	14.5
Birm'h'm, Ala.	18.0	21.0	4.0	14.5
Mobile	17.0	20.0	4.0	14.0
Montgomery	16.0	19.0	5.0	15.5
Clarks'le, Miss.	17.0	20.0	4.0	11.5
Jackson	17.0	20.0	4.0	11.5
Natchez	16.5	19.5	4.0	14.0
Gulfport	18.5	21.5	6.0	14.0
Vicksburg	16.5	19.5	4.0	14.0
Jack'ville, Fla.	18.0	21.0	5.0	11.5
Miami	20.0	23.0	5.0	14.5
Pensacola	19.0	22.0	5.0	13.0
Tampa	18.0	21.0	5.0	13.0
Lexington, Ky.	18.0	21.0	5.0	15.5
Covington	19.0	22.0	5.0	15.5
Louisv'lle	18.0	21.0	5.0	15.0

In addition to the state tax of 4 cents on gasoline, Montgomery has city tax of 1 cent on gasoline. Kerosene prices in Georgia includes 1 cent tax. In Florida, an inspection fee of 0.125 cent; in Alabama, an inspection fee of one-half cent on kerosene only. Pensacola tax includes 1 cent city levy. Gulfport tax includes privilege tax of 2 cents in addition to state tax.

PENNSYLVANIA-DELAWARE AND PART NEW ENGLAND

Atlantic Refining Co.

	Gasoline			Kero.
	Tank wagon	Service station	Incl'd's tax	tank wagon
Pittsburgh, Pa.	16.0	*22.0	...	14.0
Philadelphia	15.0	*21.0	...	14.0
Scranton	16.0	*22.0	...	14.0
Allentown	16.0	*22.0	...	14.0
Altoona	16.0	*22.0	...	14.0
Erie	12.0	*18.0	...	14.0
Dover, Del.	19.0	22.0	3.0	14.0
Wilmington	19.0	22.0	3.0	14.0
Spring'd, Mass.	16.0	16.0	...	15.0
Worcester	15.0	15.0	...	15.0
Boston	15.0	15.0	...	15.0
Providence, R.I.	19.0	19.0	2.0	15.0
Hartford, Conn.	18.0	18.0	2.0	15.0
New Haven	18.0	18.0	2.0	15.0

*Includes tax of 3.0 cents. Pennsylvania tax is collected by the dealer and paid by him direct to the State.

NEW YORK AND PART OF NEW ENGLAND DISTRICT

Standard Oil Co. (New York)

	Gasoline			Kero.
	Tank wagon	Service station	Incl'd's tax	tank wagon
Albany, N. Y.	17.0	19.0	...	15.0
*New York	17.0	19.0	...	15.0
Buffalo	17.0	19.0	...	14.0
Rochester	13.0	16.0	...	14.0
Syracuse	17.0	19.0	...	15.0
Boston, Mass.	17.0	19.0	...	15.0
Augusta, Me.	21.0	23.0	4.0	15.0
M'nch't'r, N. H.	19.0	23.0	4.0	15.0
Burlington, Vt.	20.0	22.0	3.0	15.0

*Price in steel barrels.

NEBRASKA

Standard Oil Co. (Nebraska)

	Gasoline			Kero.
	Tank wagon	Service station	Incl'd's tax	tank wagon
Omaha	14.25	16.26	2.0	12.25
McCook	14.75	14.75	2.0	11.50
Norfolk	16.75	18.75	2.0	12.75
N. Platte	17.75	19.75	2.0	13.50
Scottsbluff	17.25	19.25	2.0	13.00

PACIFIC COAST DISTRICT

Standard Oil Co. (California)

	Gasoline			Kero.
	Tank wagon	Service station	Incl'd's tax	tank wagon
San Francisco	17.0	21.0	3.0	15.5
Pueblo	18.0	18.0	3.0	15.5
Los Angeles	16.5	20.5	3.0	15.5
Reno, Nev.	22.0	26.0	4.0	19.0
Portland, Ore.	17.5	21.5	3.0	16.5
Seattle, Wash.	16.5	20.5	2.0	16.5
Tacoma	16.5	20.5	2.0	16.5
Spokane	20.5	24.5	2.0	20.5
Phoenix, Ariz.	23.0	27.0	4.0	20.5

ATLANTIC COAST DISTRICT

Standard Oil Co. (New Jersey)

	Gasoline			Kero.
	Tank wagon	Service station	Incl'd's tax	tank wagon
Atlantic City	18.0	20.0	2.0	14.0
Newark, N. J.	18.0	20.0	2.0	14.0
Annapolis, Md.	20.0	23.0	4.0	12.0
Baltimore	20.0	23.0	4.0	10.0
Cumberland	20.0	23.0	4.0	14.0
Washington	18.0	21.0	2.0	12.0
Danv'lle, Va.	20.5	....	4.5	14.0
Norfolk	20.5	23.5	4.5	12.0
Petersburg	20.5	23.5	4.5	14.0
Roanoke	20.5	23.5	4.5	14.0
Richmond	18.5	21.5	4.5	14.0
Ch'rslt'n, W.Va.	20.0	23.0	4.0	14.0
Keyser	20.0	23.0	4.0	14.0
Parkersburg	17.0	20.0	4.0	14.0
Wheeling	20.0	23.0	4.0	14.0
Charlotte, N. C.	20.0	23.0	4.0	14.0
Hickory	20.0	20.0	4.0	14.0
Mt. Airy	20.0	23.0	4.0	14.0
Salisbury	20.0	23.0	4.0	14.0
Charlst'n, S. C.	20.0	23.0	5.0	14.0
Columbia	20.0	23.0	5.0	14.0

ROCKY MOUNTAIN DISTRICT

Continental Oil Co.

	Gasoline			Kero.
	Tank wagon	Service station	Incl'd's tax	tank wagon
Denver, Colo.	16.0	18.0	3.0	12.5
Pueblo	16.0	18.0	3.0	14.5
Grand Jnctn.	20.5	22.5	3.0	18.0
Casper, Wyo.	17.0	19.0	3.0	13.0
Cheyenne	18.0	20.0	3.0	14.5
Butte, Mont.	22.5	22.5	3.0	19.0
Helena	22.5	24.5	3.0	19.0
Salt L'ke, Utah	20.0	21.0	3.5	17.0
Albu'que, N. M.	21.0	24.0	5.0	17.0
Boise, Idaho	23.5	25.5	4.0	19.0
Twin Falls	23.5	25.5	4.0	19.0

TANK WAGON CHANGES

January 30—Standard Oil Co. of Indiana cancelled the increased gasoline tank wagon and station prices authorized earlier in the day at Wichita, Kans., the price remaining 12.8 and 14.8 cents.

February 2—Standard Oil Co. of Indiana increased the gasoline tank wagon and station prices 2 cents at Peoria, Ill., making both 14 cents.

February 3—Standard Oil Co. of Indiana increased the gasoline tank wagon and station prices 1 cent at Minneapolis, Minn., to 15 cents.

CRUDE CHANGES

February 6—Louisiana Oil Refining Co. reduced Smackover crudes 10 cents making the light grade 90 cents and the heavy grade 75 cents. Standard Oil Co. of Louisiana met this cut on February 7.

February 7—Standard Oil Co. of Louisiana reduced Cotton Valley crude 10 cents.

PENNSYLVANIA MARKETS

OIL CITY, Pa., Feb. 4.—Gasolines and naphthas in the Pennsylvania refined market during the past week proved to be very weak. They are not moving well and the price structure is some softer. Tremendous production of motor fuel combined with small consumption has brought about this situation. Kerosene was stronger and better in price. Neutrals were unchanged during the week. Wax is holding up well in price as well as in demand. Fuel oil was stronger than last week and the demand was better. Fuel oil in the Pennsylvania area is holding up well as prices are such that the refiners in this territory can compete on quotations with Mid-Continent oil delivered to the steel mills in the Youngstown, Ohio, and Buffalo, N. Y. district and quicker shipments can naturally be made from the Pennsylvania refineries. Bright stocks are still weak. There was no change in the situation as regards cylinder stocks.

GULF COAST MARKETS CONTINUING STEADY

HOUSTON, Tex., Feb. 6.—In the face of considerable bearish feeling among buyers, the market on Gulf Coast neutral oils continued steady the past week. While Monday's business was not large sellers were optimistic in the fact that the volume so far has been larger than usual for February and indications point to a record for February sales. Houston sellers Monday, still were holding out for quoted prices which were advanced a quarter to a half cent several weeks ago. Buyers reported being offered material at lower prices but in most cases these eventually met the official quotations of Houston sellers. Export inquiries continued Monday but no important sales were reported and there has been a slackening of movements so far this month.

No change was noted in fuel oils or gas oils during the week, prices being kept in line to offset North Texas competition.

P. V. BYRNES DIES

CHATHAM, Ontario, Feb. 2.—Patrick V. Byrnes, president of the United Gas & Fuel Co., died recently at Hamilton, Ontario, aged 69. A native of Wellville, N. Y., Mr. Byrnes came to Hamilton in 1905 when he founded the Ontario Pipe Line Co. In 1913 he established the United Gas & Fuel Co., which absorbed the former company and supplied natural gas to Hamilton. Later, when the natural gas supply became depleted, the Hamilton By-Product Coke Ovens, Ltd., was organized to manufacture artificial gas. Mr. Byrnes was president of the Canadian Gas Association.

CRUDE OIL PRICES

(Continued from Page 253)

bull and Hogback posted by Midwest Refining Co., and the remainder by the Ohio Oil Co. Both companies post Grass Creek light and Elk Basin.

EASTERN STATES

Joseph Seep Purchasing Agency
(Effective December 17)

Penna. Grade Oil in New York Transit Line (New York)	$2.00
Bradford District Oil in National Transit Lines (Pennsylvania)	2.00
Penna Grade Oil in National Transit Lines (Pennsylvania)	2.00
Penna Crude Oil in Southwest Pennsylvania Lines (West Virginia)	2.00
Penna. Grade Oil in Eureka Pipe Line Lines (Pennsylvania)	2.00
Penna. Grade Oil in Buckeye Pipe Line lines (Ohio)	2.35
Cabell Grade Oil in Eureka Pipe Line lines (West Virginia) (December 4)	1.50
Corning 35-cent grade oil in Buckeye Pipe Line Co.'s line (December 19)	1.60
Corning 25-cent grade oil in Buckeye Pipe Line Co.'s lines (December 19)	1.60
Somerset Oil in Cumberland Pipe Line lines (Kentucky) (December 4)	1.50
Ragland Grade oil in Cumberland Pipe Line lines (Kentucky) (August 1)	.85
Kelster (Pennsylvania) (August 1)	1.10

MIDDLE WESTERN STATES

Ohio Oil Co.
(Effective March 14)

Lima	$1.71
Wooster	1.57
Illinois	1.60
Indiana	1.40
Princeton	1.60
Plymouth	1.57
Waterloo (Nov. 17, 1926)	1.35
*Western Kentucky	1.35
**Saginaw, Mich., Saginaw Sand (May 27)	2.00
**Saginaw, Mich., Berea Sand (May 27)	1.95
†Cumberland, Clay, Barren, Clinton and Monroe Counties, Kentucky (March 16)	1.50
‡Oil in lines of Stoll Oil Refining Co. in Oil City, Ky. (March 16, 1927)	1.50
§Oil Springs (Canada)	2.10
§Petrolia (Canada)	2.10

*Posted by Ohio Oil Co.
†Posted by Paragon Development Co.
‡Posted by Stoll Oil Refining Co.
§Posted by Imperial Oil Co., Ltd.
**Posted by Sun Oil Co.

MEXICAN CRUDE

Note—Due to the fact that the exportation of Tuxpam light crude oil has become a negligible factor, prices will no longer be published.

*Panuco heavy (f.o.b. Mex. ports)	$1.15

*$.15.

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Natural Gasoline Manufacture

Natural Gasoline In Western Canada Has Steady Growth

S. E. Slipper, formerly of the Geological Survey of Canada and for years intimately associated with oil and gas development in the Canadian West, in a recent summary gives an estimate of the natural gas and natural gasoline developments and possibilities of western Canada. Mr. Slipper writes:

"The utilization of natural gas has attained its greatest development in the United States and Canada. The United States is first in the world's production while Canada stands second. But the United States production in 1924 had reached the enormous figure of 1,000,000,000 M feet, valued at $254,000,000; while the Canadian production was only one sixty-third of this, valued at $16,000,000.

"Prior to 1924 the supremacy in natural gas production was held by the eastern states, but in 1924 the western and southwestern states acquired the lead in the volume produced. In Canada, Ontario produced the larger volume of gas until 1925, when the production in Alberta exceeded the Ontario production by 2,000,000,000 feet.

"In 1925, according to the Dominion Bureau of Statistics, Ontario produced 7,143,963 M feet, valued at $3,958,006. Alberta produced 9,119,500 M feet, valued at $2,752,545. Some of this gas is wet and the gasoline is extrated.

"The serious utilization of natural gas commenced in the United States in 1824. In eastern Canada gas was first used in 1857. In western Canada a few shallow gas wells were drilled along the main line of the C. P. R. prior to 1903, but in that year the Medicine Hat gas field was discovered. Since then there has been a continual development of gas fields in the province. Some of these discoveries were made by gas companies definitely exploring for gas, while others were found in the course of exploration for oil.

"The possible gas-bearing area of the province is very large. A very large part of it is, however, of only casual interest because of being too distant from the gas-consuming centers—Calgary and Edmonton.

"The possible gas-bearing areas available for the service of Calgary and southern towns are the southern plains of Alberta and the foothills. Recent geological work leads us to believe that the southern plains will yield us large supplies of gas for many years to come. The future gas supplies from the foothills will largely depend upon the oil exploration activity.

"The Edmonton supplies will continue to be obtained from the Central Alberta region—the northern areas containing the Pelican and Peace River Fields are too far away and too isolated to be considered and it will be some years before they will be valuable.

Medicine Hat Field

"The Medicine Hat gas field was developed early in the history of the province. The gas field underlies the city. The drilling depth is about 1,000 feet. The open flow of a new well is about 3,000,000 feet. The closed pressure is now about 350 pounds. The gas is produced and distributed as a municipal enterprise. The drop in pressure has been about 10 per cent.

"The Bow Island Field was developed by the Canadian Western Natural Gas, Heat, Light & Power Co. to supply Calgary. Production began in 1912. The depth to the gas sand is about 2,000 feet. The original open flow of the wells was from 8,000,000 to 24,000,000 feet and the original rock pressure 750 pounds. The field took all the Calgary load from 1912 to 1923. It is now used mostly as a standby field.

"The Foremost Field was discovered by United Oils, Ltd., in 1916. It was developed by the Canadian Western Natural Gas, Light, Heat & Power Co. It is now our main source of supply in the southern plains. The depth to the gas sand is about 2,100 feet. The open flows are from 7,000,000 to 20,000,000 feet per day—the closed pressure about 700 pounds per square inch.

TO INDICATE GRADE ON EACH BILL OF LADING

Manufacturers of natural gasoline in their future shipments are being asked by the Natural Gasoline Association of America to stamp each bill of lading with a rubber stamp showing the grade shipped. This recommendation was adopted at a meeting of the association's directors held last week in Tulsa.

According to manufacturers the stamping of each bill of lading will eliminate the disagreements which sometimes arise between buyers and sellers as to the grade of product delivered. It is claimed that in some brokerage transactions the buyers purchase one grade from the manufacturers and sell the product as a higher-priced grade to the jobber or refiner. These transactions have generally resulted in losses either through outage claims or through adjustments made in prices.

Due to this situation the manufacturers are being asked to stamp on the bill of lading just what grade they are shipping. The suggested stamp is "sold and guaranteed as grade 'A'" or whatever grade the natural gasoline happens to be.

INSTALLING MORE UNITS AT PINE ISLAND PLANT

SHREVEPORT, La., Feb. 4.—The Texas Company is installing two more units in the compressor station and gasoline absorption plant operated in connection with its Pine Island, La., gas lift installation. These will increase the number to six units. The new units are of the low pressure type and will supply more gas to the absorption plant, the natural pressure on the once high pressure Pine Island gas having decreased during the past few months. The four units now in use are required for the gas lift installation on the company's new wells. The absorption plant is producing between 6,000 and 9,000 gallons per day at present. The plant was completed and placed in operation during the latter part of last year and is running approximately 20,000,000 feet of gas per day.

NEW GASOLINE PLANTS IN LOS ANGELES AREA

LOS ANGELES, Calif., Feb. 4.—The natural gasoline production of California was increased recently due to the completion of two new plants. The Lomita Gasoline Co. completed a 20,000-gallon plant in the Long Beach Field. This plant incorporates several new features in gasoline plant design.

In the Signal Hill district, the Signal Gasoline Co. has added a 15,000-gallon unit to its No. 2 plant. The Gilmore Gasoline Co. has let a contract to J. A. Campbell for the building of a 15,000-gallon unit at its No. 2 plant in the Long Beach Field. Mr. Campbell also built the Lomita and Signal plants.

1927 NATURAL GASOLINE OUTPUT TOTALED 1,626,900,000 GALLONS

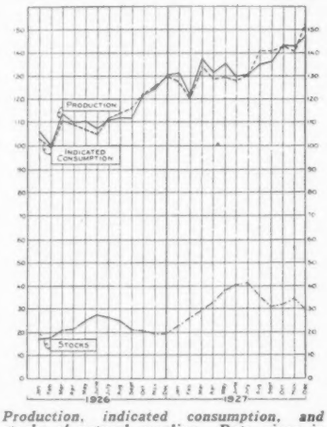
The output of natural gasoline in United States totaled 1,626,900,000 gallons during 1927 according to a report just released by the Bureau of Mines of the Department of Commerce. The output represents an increase of 270,100,000 gallons or a 20 per cent gain over the 1,356,800,000-gallon output in 1926.

The increase is the largest yearly gain, with the exception of 1923, in the history of the natural gasoline business. The following table gives the production and yearly increase for the past 10 years (production given in thousands of gallons):

	Production	Increase
1927	1,626,900	270,100
1926	1,353,800	226,330
1925	1,127,470	193,609
1924	933,861	118,635
1923	815,226	309,394
1922	505,832	55,898
1921	449,934	65,190
1920	384,744	33,209
1919	351,535	68,999
1918	282,536	64,652

In 1923 there was an exceptionally large number of new plants built so that the production showed a 309,394,000-gallon increase over 1922. The rate of increase was less in 1924, but since that time there has been a rapid increase. It will be noted from the above table that the 1927 production was approximately twice the total output in 1923.

The 1927 output of natural gasoline represented better than 11 per cent of the total motor fuel supply in United States. The natural gasoline industry has steadily increased in importance as a source of motor fuel supply and in 1927 established a new record in that regard.



Production, indicated consumption, and stocks of natural gasoline. Data given in millions of gallons.

1927 Production

As shown in Table 1 all areas increased their output of natural gasoline with the exception of the Appalachian and Indiana, Illinois, etc. These areas east of the Mississippi River are minor factors in the reduction of natural gasoline, the total output being less than 10 per cent of the total for the United States. There were no special developments in the producing end in those fields during 1927 so that the new supply of casinghead gas for natural gasoline plants was limited to the older fields. The fact that prices were relatively low also served to curtail the output. The output of most of the plants east of the Mississippi River is small and when prices are low there are a number of shutdowns.

Mid-Continent Area

West of the Mississippi River the production is divided into the Mid-Continent, Rocky Mountains and California areas. The production of the Mid-Continent in 1927 totaled 981,600,000 gallons or 62 per cent of the total for the entire United States. Every section in the Mid-Continent showed an increase. The greatest increase was in Texas, the 1927 output being 84,400,000 gallons greater than it was in 1926. The Texas increase came largely from the Panhandle Field of Texas. Several plants were built in that area late in 1926 and their production is reflected in the 1927 reports. A few plants were built in that area during 1927 further increasing its output. Outside of the Panhandle a few scattered plants were built in 1927, but the output of these plants for the most part only served to offset the declines at the older plants.

In the area listed as "Oklahoma, Kansas, etc," the 1927 production was 78,400,000 gallons greater than in 1926. The bulk of this increase came the latter half of 1927, due to the large output of the new Seminole area of Oklahoma. The natural gasoline output of that field started late in 1926. The increase was slow over the first few months of 1927. Starting in the summer months due to the completion of large plants the output mounted rapidly and at the end of the year totaled approximately 800,000 gallons daily, the large area in the United States from the standpoint of natural gasoline production. Several new plants were built in Louisiana and Arkansas during 1927, and they were responsible for the 6,800,000 increase in output during the year.

Rocky Mountain Area

In the Rocky Mountain area the natural gasoline production increased 4,000,000 gallons in 1927 or approximately 10 per cent over the 1926 output. This increase came largely from the old plants which were enlarged to handle gas supplied by the drilling of inside wells. That area in the past has had considerable excess gas and this is now being made available to plants already operating.

California Increase

California had the largest increase of any state. Its 1927 output was 100,300,000 gallons, or more than 25 per cent greater than the 1926 output. The discovery of deep sand production in some of the fields of the Los Angeles Basin was a prolific source of gas supply for the natural gasoline manufacturers who increased the capacity of their old plants and made many new installations. Early in 1927 the Ventura avenue production was responsible for a part of the enlarged natural gasoline production.

TABLE 1—NATURAL GASOLINE MANUFACTURE—1927 AND 1926
(Thousands of gallons)

	1927	1926	1927 Increase
Production	1,626,900	1,356,800	270,100
Indicated consumption	1,616,427	1,353,000	263,427
Stocks end of year	29,573	19,100	10,473
Production by divisions:			
Appalachian	94,400	96,800	*2,400
Indiana, Illinois, etc.	16,000	17,700	*1,700
Oklahoma, Kansas, etc.	582,500	503,100	79,400
Texas	316,600	232,200	84,400
Louisiana and Arkansas	82,500	75,700	6,800
Rocky Mountains	45,900	41,900	4,000
Total east of California	1,137,700	967,400	170,300
California	489,700	389,400	100,300
Total United States	1,626,900	1,356,800	270,100

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PETROLEUM COMPANY
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Oil Securities Shared Softening Trend

Advance of Rediscount Rate and Reduction of Dividends Believed Responsible for General Market Change

A gradual softening of the entire market was accompanied by a corresponding softening of the oil issues last week. As far as may be ascertained, there was no especial reason for this action in the oils, aside from the advance of the rediscount rate, and the reduction of the dividend rate.

Many of the oils were again resting upon their 1927 lows.

Cumberland Pipe Line

Cumberland Pipe Line Co. declared an extra dividend of $8 and regular quarterly dividend of $2, both payable March 15 to stock of record February 29.

Cumberland Pipe Line Co. reports for the year ended December 31, 1927, net profit of $225,386, equivalent to $7.51 a share earned on 30,000 shares of stock, as compared with $390,965, or $13.03 a share in 1926.

The statement for 1927 compares as follows:

	1927	1926
Net profit	*$ 225,386	*$390,965
Dividends	1,230,000	360,000
Deficit	$1,004,614	†$30,965

*Includes $12,202 credit adjustment of profit and loss account for 1927 and $32,888 for 1926. †Surplus.

The balance sheet of Cumberland Pipe Line Co. as of December 31, 1927, compares as follows:

Assets

	1927	1926
*Plant	$1,555,651	$1,713,889
Government secur., etc.	1,810,354	2,711,689
Accts. receivable	331,678	320,362
Cash	101,554	158,488
Total	$3,799,237	$4,904,428

Liabilities

Capital stock	$3,000,000	$3,000,000
Accts. payable	222,700	323,277
Oil pur. and sales cont.	.....	.....
Surplus	576,537	1,581,151
Total	$3,799,237	$4,904,428

*After depreciation.

Pure Oil

The Pure Oil Co. declared a quarterly dividend of 12½ cents on the common stock, payable March 1 to stockholders of record February 10. Previously the company had been paying 37½ cents quarterly.

In connection with the reduction of the common dividends, Henry M. Dawes, president, states: "The oil business is going through one of the cycles of overproduction which seem to be inherent in every industry in which the supply of the raw materials is affected by the discovery element. In the long view, the industry is in a fundamentally sound position, but obviously no one can predict just how long this particular phase will last. Pure Oil Co.'s financial condition is satisfactory, but the directors felt that the interest of the stockholders would be benefited by following the conservative course and husbanding its resources, and in pursuance of this policy reduced the dividend on the common stock."

Atlantic Refining

J. W. Van Dyke, chairman of the board of the Atlantic Refining Co., has made the following statement:

"At this early date our accounting records for 1927 have not been completely assembled, so I naturally cannot forecast with any exactness what they will exhibit. However, it is certain that the company will report a small profit for 1927. This profit, such as it may show, will be after adjusting to current lower levels the inventory values of crude oil and petroleum merchandise. The effect of this adjustment was felt principally in the early months of the year and was reflected in the semiannual statement issued as of June 30, 1927.

"Since April last we havve been making profits on current transactions which have more than offset the losses shown in the statement above referred to.

"I do not care to discuss the various rumors that have appeared in the past few weeks regarding future dividend declarations; so, while I cannot forecast the action of the board of directors I know of no reason why a dividend at the same rate as has been recently paid should not then be declared."

Eureka Pipe Line

The report of the Eureka Pipe Line Co. for the year ended December 31, 1927, shows net income of $4,602 after depreciation, etc., equivalent to 9 cents a share earned on 50,000 shares of stock. This compares with net loss of $13,673 in 1926.

The company is making application to increase its gathering line charge from 30 to 35 cents per barrel, the same as in adjoining territory in Ohio.

Cosden Company

It is reported that Joshua C. Cosden, founder of the Cosden Oil & Gas Co., which later became the Mid-Continent Petroleum Corp., is forming a new company with capital of $5,000,000, to engage in the oil business in the southwest. Several small producing concerns will be taken over in addition to the widespread properties now operated by Mr. Cosden personally.

Intercontinent Petroleum

At the annual meeting of the stockholders of the Intercontinent Petroleum Co., eight new directors, representing new American and British interests, were elected. The new members of the board are George C. Lewis, of the Columbian Carbon Co.; George W. Steele, of the Brunswick Terminal Co.; George H. Eddy and George F. Hilton, all of New York, in addition to Lord Strathpiey, Sir Lionel Fletcher, Col. Bennet Dampier, London, and F. R. D. Tod, of Edinburgh, Scotland.

Southwest Penn Pipe Lines

The report of the Southwest Pennsylvania Pipe Line Co. for the year ended December 31, 1927, shows a profit of $362,289 after depreciation, etc., equivalent to $10.35 a share earned on 35,000 shares of stock. This compares with $249,362, or $7.12 a share, in 1926.

Marland Oil

The report of the Marland Oil Co. and subsidiaries for the year ended December 31, 1927, shows net loss of $7,691,076 after interest, depreciation, depletion, reserves for intangible drilling costs and reduction of crude oil inventory to market. This compares with net income in 1926 of $11,690,811 equal to $6.05 a share on 1,930,614 no par value shares then outstanding.

The consolidated income account for 1927 compares with 1926 as follows:

	1927	1926
Gross	$56,322,473	$77,608,340
Operating expense, etc.	45,195,757	60,938,210
Net	$11,126,716	$16,670,130
Other income	2,657,331	10,752,019
Total income	$13,784,047	$27,422,157
Interest, etc.	1,180,825	332,135
Reserves	*9,000,568	*9,837,771
Inventory adjustment	2,794,928	.....
Depreciation & Depletion reserve	6,308,280	4,445,232
Other charges	2,190,522	1,123,300
Net loss	$7,691,076	†$11,690,811
Dividends	2,310,853	7,651,967
Deficit	$10,001,929	‡$4,039,744

*Reserve for intangible drilling costs.
†Profit.
‡Surplus.

The consolidated balance sheet of the Marland Oil Co. and subsidiaries as of December 31, 1927, compares as follows:

Assets

	1927	1926
*Property account	$57,256,620	$55,964,913
Investment & Advances	14,075,048	11,794,177
Unadjusted debit	2,992,569	1,993,043
Cash	11,014,731	2,755,704
U. S. Treas. ctfs.	7,271,015	.....
Bills receivable	259,280	344,166
Accts. receivable	5,566,577	7,511,519
Crude oil	8,066,577	10,806,194
Refined products	5,135,119	6,647,035
Materials & supplies	4,599,028	4,592,262
Accrued interest, etc.	73,016	10,170
Misc. demand items	45,634	42,238
Total	$116,355,514	$102,461,420

Liabilities

Capital stock	†$85,303,559	$66,364,958
Deficit	1,585,453	‡8,398,868
Gold notes	30,000,000	.....
Stock subsc.	.....	18,909,788
Minority interest	19,191	20,906
Contingent reserve	52,083	.....
Bills payable	.....	4,000,000
Accts. payable	2,223,236	4,374,562
Accrued accts.	342,898	392,340
Total	$116,355,514	$102,461,420

*After depreciation and depletion.
†Represented by 2,317,225 no par value shares.
‡Surplus.

E. W. Marland, president of the Marland Oil Co. states that capital investment for additions to property in 1927 totaled $17,595,457, compared with $33,425,565 in 1926. Net income before capital extinguishments amounted to $9,805,294 in 1927, against $27,100,022 in 1926. The reserve set up for 1927 amounted to $17,499,371 against $15,409,211.

Woodley Petroleum

At the annual meeting of the stockholders of the Woodley Petroleum Co. held at Shreveport, La., the board of directors and officers were retained by re-election, for the year 1928. The earning statement for 1927 showed a net earning after federal taxes, but before depreciation and depletion, of $1.58½ per share; and after federal taxes and after depreciation and depletion 55 cents per share.

Dividends

At a meeting of the board of directors of the Standard Oil Co. of California, regular dividend No. 8, of 62½ cents a share, was declared, payable on March 15,1928, to all stockholders of record February 15.

The board of directors of the Western Oil & Refining Co., (a Nevada corporation), have declared the dividend on the outstanding preferred stock for the last half of 1927, payable March 15, to the stockholders of record February 15.

L. S. TAINTER DIES

NEW YORK, Feb. 4.—Louis Swift Tainter, an independent oil jobber well known in local petroleum circles, died at his home at Rye, N. Y., after a short illness, at the age of 43 years. He was the son of Charles Emory Tainter, vice president of the Henry E. Davies Estates Corp., and a director of the British Oilgram Co., Ltd., of London.

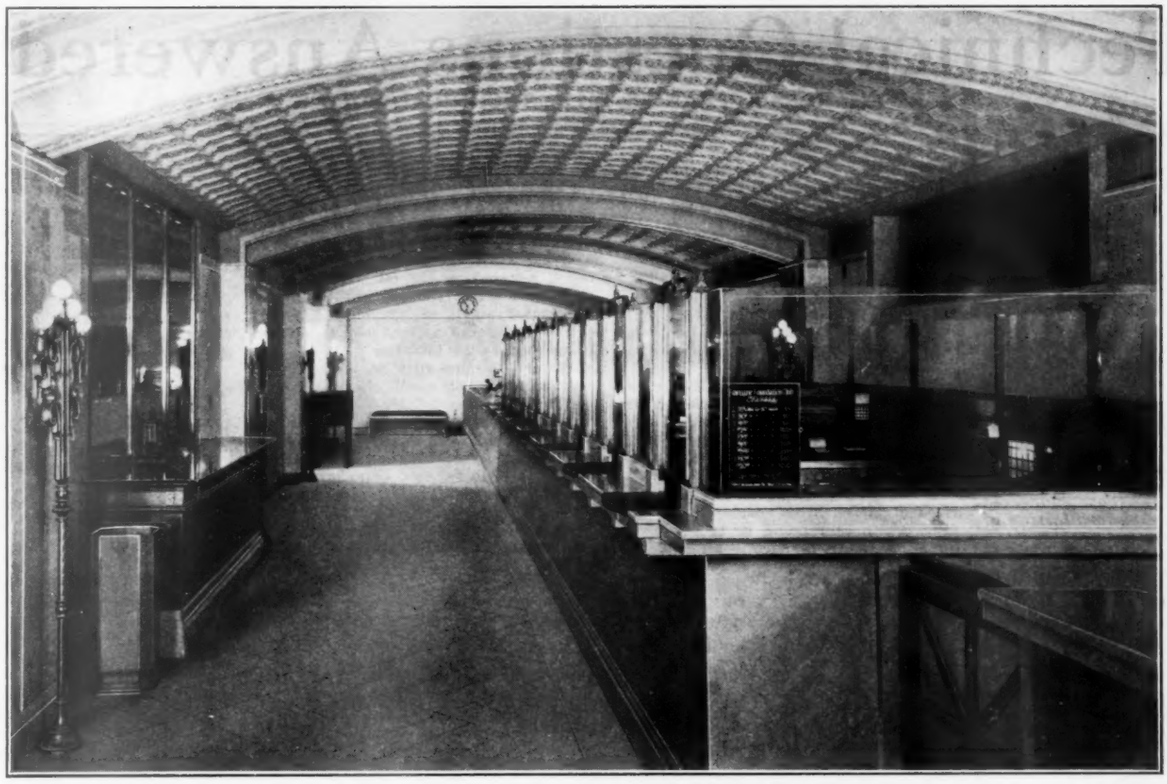
LIST OF ACTIVE PETROLEUM STOCKS

Stocks	Par	Clos. Quot. Feb. 6	Jan. 30	1927 High	Low	1926 High	Low	1925 High	Low
Amerada Corp.	..	30½	30⅜	37⅛	27⅝	32⅞	24⅜	..	..
Atlantic Refining, com.	100	100¾	106⅛	131⅝	107	128⅝	97	117½	95½
Barnsdall "A"	25	23½	24⅛	35½	20¾	32½	23½	33⅛	18¾
California Petroleum, com.	25	25⅝	26	32⅞	20	38⅛	30⅞	34⅝	23⅜
Houston Oil	100	140	146	175⅜	60½	75	50¼	85	50
Independent Oil & Gas	..	25½	26⅜	32⅜	17⅝	34	20⅛	41⅜	13½
Louisiana Oil	10	10⅜	11⅛	18⅛	10½	19⅝	12	23⅜	13¾
Maracaibo	..	15½	16	22⅜	12	27⅜	18⅜	35½	20⅜
Marland	..	35¼	36⅛	58⅛	31	63⅜	41¼	60⅛	31⅝
Mid-Continent Petroleum	..	26½	27⅞	39⅜	25½	41	25⅝	38	25¾
National Supply	50	93½	93	95⅜	76	84⅞	55½	71	54⅜
Oil Well Supply	25	35½	37	44⅜	31¼	36	30	38	33⅜
Pan American, B.	50	42¼	42¼	66⅜	45⅛	72⅜	56⅛	83⅞	59½
Pan American, Western B.	..	19½	19⅞	37⅞	16⅜	46	34	94⅜	37¼
Phillips Petroleum	..	39⅞	41⅜	60¼	36½	54⅞	42½	47⅛	47¼
Producers & Refiners	50	22¼	23½	33⅞	16¾	26	11	32⅜	12½
Pure Oil, com.	..	21	25⅛	33½	25	31	25⅜	33⅜	32½
Royal Dutch, N. Y., sh.	13.40	46⅜	44⅞	54½	44¼	57⅜	49⅜	57⅜	48¼
Shell Transport	10	41⅜	39½	49	41½	48⅞	42	49	30⅜
Shell Union, com.	..	25	25¼	31⅜	24⅝	30⅝	24	28¾	21⅝
Simms Petroleum	10	21⅜	22⅛	23⅞	14¼	25⅝	16½	28½	18¾
Sinclair Consolidated	..	18½	19⅝	22⅜	15⅛	24⅞	16¾	24⅞	17
Skelly Oil	25	26¾	27	37⅜	24⅛	37⅛	27	32½	21¾
Standard of California	25	54¼	55	60¾	50⅜	63½	54	67¼	52½
Standard of New Jersey, com.	25	39	39⅝	41⅝	35⅛	46⅝	37½	47½	38⅝
Standard of New York	25	29½	29¾	34⅛	29¾	47¼	30⅝	48⅝	40
Sun Oil Co.	..	35½	37	34⅞	30	41⅛	30⅛	43⅞	38½
The Texas Company	25	52⅜	53⅜	58	45	58	48	55	43⅜
Texas Pacific Coal & Oil	10	14⅜	15	18⅞	12	19½	12⅛	23¼	11
Tide Water Associated	..	15⅜	16½	19⅛	15⅜	21	17	..	..
Transcontinental	..	8⅛	8⅜	10⅜	3⅜	5½	3	5⅜	3½
Union Oil of California	25	43⅛	43½	56½	39⅜	53⅜	37¼	43⅝	38½
Union Tank, com.	100	120	120	126	94	120⅜	84¼	‡134	118
White Eagle Oil & Refining	..	21⅜	22	27½	21⅜	29¾	25⅛	28¾	25⅝
Standard Oils									
Anglo-American Oil	£1	20⅝	19¾	21⅝	17⅛	19¾	16½	26¾	17½
Borne Scrymser	25	50	53	69	49½	75	65	‡240	205
Buckeye Pipe Line	50	61½	62¼	59	45	59½	42	72	63½
Chesebrough Manufacturing Co.	25	135	137	126	76½	81⅛	63	74	48¼
Continental	10	19¼	20¼	22⅝	16¼	25⅞	10¼	31⅛	21⅝
Cumberland Pipe Line	100	101	93	‡137	90	137	102	156	128
Eureka Pipe Line	100	66	68	66	47	43¾	43	96	61¼
Galena Signal, com.	100	5	5	13½	4½	32⅛	9⅞	68½	23½
Humble Oil & Refining Co.	25	63½	65	67⅜	54	99⅝	52	99	40½
Illinois Pipe Line	100	182	183	181½	123¾	144	131	154½	124
Imperial Oil	..	60¾	60⅜	64⅜	37⅜	39⅜	32½	39¼	27¼
Indiana Pipe Line	50	75	75½	93	61	68	52¼	84	57⅜
International Petroleum Co.	10	38¼	39¼	36⅜	28¼	35¼	28⅜	25⅜	20⅛
National Transit Co.	12.50	21½	20⅜	23¼	13¼	30⅜	27⅛	25½	16½
New York Transit	100	47	47	42	31¼	61½	27¼	70	50
Northern Pipe Line	100	101	98	96	70	80½	64	88	67½
Ohio Oil Co.	25	62⅜	64¾	66	52	67⅜	55⅜	75¼	60
Penn-Mex Fuel	25	38⅛	37½	36⅛	12	24¼	15	44	19
Prairie Oil & Gas	25	48⅜	49	55½	45⅝	60¼	49	65½	45⅞
Prairie Pipe Line	100	187	185½	189¼	132	137½	122½	129¾	105
Solar Refining Co.	100	176	175	‡201½	178	212	184½	259	200
South Penn Oil	25	37	38¾	41½	34½	50	30	‡197	139
Southwest Pa. Line	100	87	85	78	55½	56	47½	84	50
Southern Pipe Line	50	29	31¼	39	18½	27	34	‡103	63
Standard of Indiana	25	77	77⅛	80¼	64⅝	70½	60½	70¾	69¼
Standard of Kansas	25	15⅞	16¼	20⅞	15⅜	36½	16½	45	30
Standard of Kentucky	25	126	127½	125½	111½	134⅜	107	137	114⅜
Standard of Nebraska	25	41½	42	49½	43	51⅛	42	‡270	231
Standard of Ohio, com.	100	74	76	81½	72	362	192½	369	338
Swan & Finch, com.	25	17	17	21	14½	21	18	27	12
Vacuum Oil	25	144⅝	144	147	95⅛	109⅜	94⅛	109½	80½
Miscellaneous									
Gulf Oil Corp. of Pa.	25	111⅞	111⅝	116	86¼	95	82½	98¼	63½

*B'd, no sales. ‡Old Stock. †New Stock. §Ex-dividend.
Quotations furnished by W. J. Wollman & Co.

The Oil and Gas Journal's weekly average price of 20 representative petroleum stocks listed on the New York Stock Exchange and New York Curb was as follows:

Feb. 6	62.03	Dec. 31	62.09	Nov. 28	62.92
Jan. 30	62.75	Dec. 27	62.86	Nov. 21	63.66
Jan. 23	63.49	Dec. 19	63.24	Nov. 14	62.78
Jan. 16	63.87	Dec. 12	62.07	Nov. 7	61.30
Jan. 9	63.55	Dec. 3	62.06	Oct. 31	69.98



Beginning a new era in Mid-continent financing

Intimately acquainted with petroleum activities from prospecting to retailing, Tulsa's oldest bank, the First National and the First Trust and Savings Bank is well equipped to serve every financial need of the corporation or individual engaged in producing, refining, or marketing. Recently the First Trust and Savings Bank underwrote a $4,200,000.00 stock issue. In these days of large financial operations this transaction is not extraordinary. It was, however, the first instance in which a financial transaction of major importance had been handled solely by a local banking institution.

The First Trust and Savings Bank is now in its new home, under one roof with Tulsa's oldest, the First National Bank.

THE FIRST NATIONAL BANK *and* THE FIRST TRUST AND SAVINGS BANK

COMBINED RESOURCES EXCEED $28,000,000.

Technical Questions Answered

BY CHARLES K. FRANCIS, PH.D., TECHNICAL EDITOR

This department of The Oil and Gas Journal is devoted to the manufacturing branches of the oil industry.

Those connected with the refining of crude petroleum, the manufacture of natural gasoline and closely allied industries are invited to submit their problems to Dr. C. K. Francis, technical editor. The department was created for the purpose of aiding managers, superintendents, engineers, chemists and all those engaged in the various phases of plant operation; also those connected with the marketing and utilization of petroleum products.

Questions should be submitted in as much detail as possible so as to assure a satisfactory answer.

All inquiries should be signed and if other than the given initials are to be used please indicate the desired letters.

Questions involving patented processes, intricate formulas and calculations and estimates of costs, for obvious reasons, cannot be answered. The replies will appear on this page within a reasonable time.

DETERMINING TANK CAR OUTAGES

Will you please give me the directions for finding the outages of tank car shipments of gasoline, including the temperature corrections?—L. E. S.

There was an excellent article Measuring and Calculating Outages, by John Stumpf, in The Oil and Gas Journal, April 21, 1927, page 86, from which the information given below is taken:

Following is a simple and accurate method of figuring tank car outages of petroleum products, based on outage and coefficient tables by the Bureau of Standards:

Suppose you receive a car of 60 gravity gasoline. It is properly sealed. There are no signs of leakage. It is invoiced to you as "shell full 8,100 gallons, net, temperature 60 degrees Fahrenheit (no temperature adjustment)."

You find an outage of 1½ inches (careful and accurate measurement). The temperature of contents taken in the exact center of the car at 78 degrees.

One authority has recommended taking the temperature 1 foot from the bottom and in the exact center of the contents, multiplying the center temperature by eight and adding the top and bottom temperature and dividing the whole by 10, which is as nearly accurate as anyone can get it, provided the thermometer is left in each position not less than three minutes and preferably five. However, in drawing out any ordinary thermometer from the bottom or from the center of any car the reading is bound to be affected by the temperature of the contents at the top, so withdraw your thermometer rapidly and read it quickly after withdrawal and write it down while you are on the car. Don't depend on your memory. The fellow that loaded the car didn't depend on his.

The one and only fixed figure you have for a basis of determining the contents of this or any car is the shell capacity, shown on every invoice and also stenciled on both ends of each car which, in this case, is 8,100 gallons.

To determine number of gallons out (1½ inches): The outage table shows outage 1 inch (8,000-gallon cars) equals 20 gallons; 2-inch out equals 53 gallons. Difference between 1 inch and 2 inches, 33 gallons. One-half of 33 equals 17 gallons. Therefore, 1 inch (20 gallons) and one-half-inch (17 gallons) makes actual outage 37 gallons. Deducting this outage from shell capacity, 8,100 minus 37, leaves 8,063 gallons in car at 78 degrees temperature.

Temperature being 78 degrees, there is an expansion of contents of car equal to 18 degrees, as the normal or average temperature on which all cars are figured is 60 degrees.

Referring to table of coefficients for 60 gravity material, we find that 1 degree variation is equal to .0006. Therefore, coefficient or fraction representing total expansion on contents this car is equal to 18 times .0006 or .0108.

Multiplying the number of gallons arrived at above, after deducting the outage, which were found to be 8,063, by our figure .0108, which represents the total amount of expansion over 60 degrees, as follows:

8,063 gallons
.0108 (figure representing 18-degree expansion)

6.4504
80.630

87.0804

87.0804, we find the total expansion is 87 gallons.

Deducting this expansion from the actual number of gallons contained in the car at 78 degrees temperature, we find:

8,063 gallons
Less 87 gallons expansion

Net 7,976 gallons at 60 degrees temperature.

As you are invoiced for 8,100 gallons, net, you find there is a shortage of 124 gallons, thus:

8,100 gallons invoiced
7,976 gallons in car at 60 degrees temperature

Short 124 gallons

Temperature Adjustment

The following table adopted by the Bureau of Standards shows the coefficient of expansion for each degree above or below the normal temperature of 60 degrees Fahrenheit for oils of various gravities which may be of some value to you in figuring the temperature adjustments on invoices:

Grade—	Range of Group °A.P.I. 60 F.	Coefficient of Expansion at 60 F.
Crude, road oil, flux, lubricating oil, gas oil, etc	Up to 34.9	0.0004
Crude, gas oil or fuel oil, lubricating oil, kerosene, etc.	35 to 50.9	0.0005
Gasoline	51 to 63.9	0.0006
Gasoline, casinghead, etc.	64 to 78.9	0.0007
Casinghead	79 to 88.9	0.0008
Casinghead	89 and higher	0.00085

ADMIRALTY FUEL OIL SPECIFICATIONS

What are the details of what is known as admiralty fuel oil specifications?—G. C. P.

These were specifications which were used during the Great War for the purchase of fuel oil by the British Admiralty:

Quality—The oil supplied shall consist of liquid hydrocarbons and may be (a) shale oil; (b) petroleum; (c) a distillate or a residual production of petroleum; and shall comply with the admiralty requirements as regards flash point, fluidity at low temperatures, percentage of sulphur, presence of water, acidity and freedom from impurities.

Flash Point—Shall not be lower than 175 degrees Fahrenheit, closed test, Abel or Pensky-Martens tester.

Sulphur—The proportion of sulphur contained in the oil shall not exceed 0.75 per cent.

Acid—The oil fuel supplied shall be as free as possible from acid, and in any case the quantity of acid must not exceed 0.05 per cent, calculated as oleic when tested by shaking the oil with distilled water and determining by titration with decinormal alkali the quantity of acid extracted by the water, methyl orange being used as the indicator.

Water—The quantity of water delivered with the oil shall not exceed 0.5 per cent.

Viscosity—The viscosity shall not exceed 1,000 seconds for an outflow of 50 cc. at 32 degrees Fahrenheit, as determined by Redwood's Standard Viscometer, Admiralty type for testing fuel oil.

Impurities—The oil supplied shall be free from earthy, carbonaceous or fibrous matter, or other impurities which are likely to choke the burners.

Note—Redwood viscosity 1,000 is approximately 1,200 Saybolt Universal and 120 Furol.

LIGHT MACHINE AND GUN OILS

I would be pleased to know what light machine and gun oils are made of. Is the odor of such oil due to something being added or is it peculiar to the oil from which it is made?—C. C. C.

The light machine and gun oils are usually obtained from what are known as pale oils or the nonviscous neutrals. While some of these oils are made from the light ends of the lubricating fraction from petroleum, which has been acid treated and filtered, they are frequently obtained from a cut made during the redistillation of the stock. Some refiners make this grade of oil without acid treating.

The nonviscous neutrals are so named because the viscosity is very low; the range being approximately 50 to 150 Saybolt at 100. Thomsen-Practice of Lubrication, gives the properties of the nonviscous neutrals as follows:

Flash point, open	320 to 360
Gravity	0.84 to 0.89
Viscosity, Saybolt, at 100 degrees Fahrenheit	65 to 125
Color	Pale
Pour point (paraffin)	15 to 25F.
Pour point (asphaltic)	0 to 15F.

These oils are frequently sold in their natural condition and are then without odor, or only a slight odor which is characteristic of the mineral oils. Sometimes such oils as cedar and oil of bitter almonds or mirbane oil, are added to give a distinguishing odor.

V. M. & P. NAPHTHAS AND OTHER SPECIAL NAPHTHAS

Will you please inform us where we may secure specifications on oil specialties, such as varnish makers and painters naphthas, rubber solvents, turpentine substitutes, or any other petroleum specialties?—C. R. W.

With the exception of Stoddard solvent we have no official specifications for the special naphthas. Stoddard solvent is the product used by cleaners and is known also as cleaners naphtha.

The specifications covering the quality of Stoddard solvent have very recently been revised to be effective March 1, 1928. The only points mentioned for distillation range are the 50 per cent point and the endpoint, these are 350 degrees Fahrenheit and 410 degrees Fahrenheit. Gravity is not specified. The complete specification follows:

Appearance—Shall be clear and free from suspended matter and undissolved water.

Color—Water-white; not less than plus 21 Saybolt.

Corrosion—A clean copper strip shall not show more than an extremely slight discoloration when submerged in the solvent for three hours at 212 degrees.

Odor—Shall be sweet.

Flash Point—Shall not be lower than 100 degrees Fahrenheit when tested in a Tagliabue closed cup.

Distillation Range—Not less than 50 per cent shall be recovered in the receiver when the thermometer reads 350 degrees Fahrenheit. The dry or endpoint shall not be higher than 410 degrees Fahrenheit.

Acidity—The residue remaining in the flask after the distillation is completed shall not show an acid reaction.

Doctor Test—Negative.

Specifications of various naphthas were discussed by W. T. Ziegenhain, "Making Special Naphthas Is Costly," in The Oil and Gas Journal, March 10, 1927, page 130. He gives the results of laboratory tests of different cleaners and painters' naphthas of which those shown below indicate the range.

Gravity	53.8	55.8	58	48.3
Initial	212	210	204	390
10%	242	244	228	320
20%	256	250	234	370
30%	260	256	240	330
40%	270	262	245	332
50%	276	270	252	336
60%	287	278	258	340
70%	300	286	264	346
80%	314	292	274	356
90%	340	312	290	366
95%	360	328	308	390
Endpoint	402	372	348	412
Loss	1%	1%	1%	1%
Flash		Low		101
Fire		Low		123
Color	17	25	24	22
Doctor	Sweet	Sl sour	Sweet	Sweet
Unsaturated	5%	6%	2%	6%
White lead (discolor) 3 hours	O.K.	None	None	None
Odor	None	None		
Grease left	None	None		

The painters' use of petroleum naphtha is principally in preparing quick-drying paints or as a solvent for certain lacquers. The speed of drying is of greatest importance here so long as the oil will not stain or change the color of the pigment. The odor is of some importance because even a trace of a bad odor will be magnified as the paint is applied over a large surface in a thin film that dries rapidly. For this reason, the specifications usually call for a doctor sweet product and are further supplemented by the specific requirements that the odor be sweet.

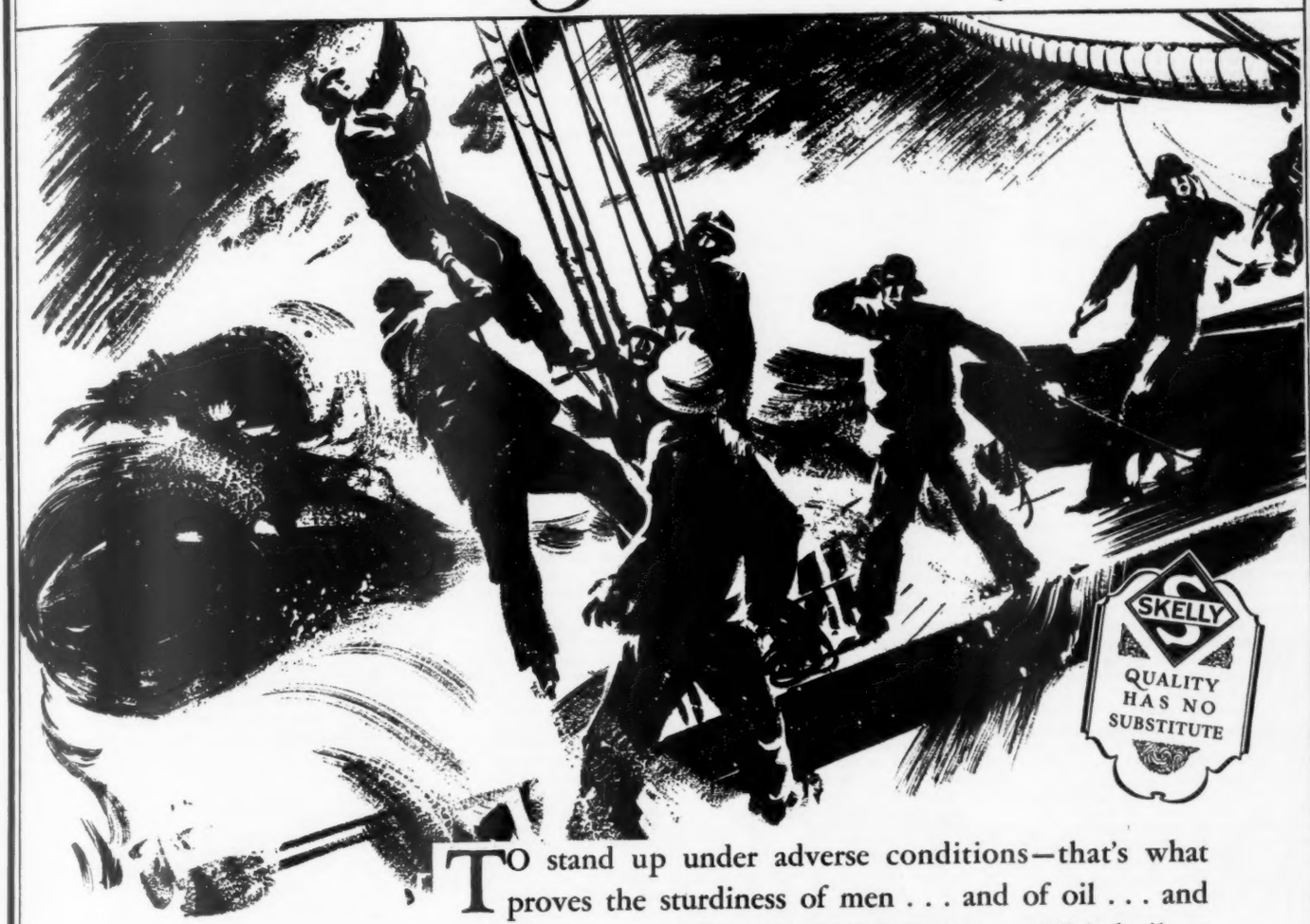
The specifications given below are from Varied Uses for Naphthas Reflected in Specifications, by H. T. Bennett, The Oil and Gas Journal, October 6, 1927, page 148.

TABLE OF NAPHTHA SPECIFICATIONS

Product—	White Spirits or Turpentine Substitute	Mineral Spirits Com.cial Turp'tine	Mineral Spirits or Turp'tine Substitute	Rubber Solvent	Cleaners' Naphtha	Nat'al Gaso. Manuf'ers' Naphtha
Gravity	44.7	31.7	48.6	....	49.5	48.8
I. B. P.	311	303	288	124	280	236
10 per cent distilled	316	306	320	152	302	298
20 per cent distilled	321	310	328	162	314	312
30 per cent distilled	324	310	337	172	320	322
40 per cent distilled	328	310	344	182	324	336
50 per cent distilled	329	310	349	190	330	346
60 per cent distilled	330	310	356	200	338	360
70 per cent distilled	332	312	362	211	342	376
80 per cent distilled	338	314	370	223	350	386
90 per cent distilled	347	318	380	245	360	408
Maximum	364	346	412	305	400	448
Flash (Tag. closed)	...	91	90	...	...	...

Table showing results of tests of a few naphthas, also a comparison with the tests of a commercial turpentine.

With Strength to Carry On



TO stand up under adverse conditions—that's what proves the sturdiness of men . . . and of oil . . . and of institutions. Skelly's TAGOLENE Motor Oil is built to *stand abuse*—to "carry on." And so is Skelly Oil Company endowed with strength to "carry on," no matter what the conditions which confront it or the industry of which it is a member. Each year sees a conservative expansion of Skelly activities.

SKELLY OIL COMPANY
Tulsa, Okla.

Refinery:
EL DORADO, KANS.

Kansas City, Mo.
Minneapolis
Omaha

TAGOLENE MOTOR OIL

MADE TO STAND ABUSE

MADE by the REFINERS of SKELLY *REFRACTIONATED* GASOLINE

WEST TEXAS FIELDS

(Continued from Page 54)

eral depths and its latest was a show at 1,056 feet. The well is being drilled ahead.

Production for West Texas reached a new peak last week with an increase of 3,200 bbls. in daily average. Winkler County registered the big gain by going above 95,000 bbls. Pecos County production hovered around 51,000 bbls. for the week. The daily production for the past week was 288,837 bbls.

Estimated Daily Average Production WEST TEXAS Week Ending February 4, 1928

Big Lake Field	22,430
Crane County	58,439
Crockett County	3,159
Ector County	15
Fisher County	175
Glasscock County	S.D.
Howard County	7,142
Jones County	1,207
Loving County	80
Mitchell County	3,399
Pecos County	51,234
Runnells County	75
Scurry County	45
Upton County	16,225
Winkler County	95,222
Total this week	288,837
Total last week	285,594
Increase	3,243

WEST TEXAS COMPLETIONS

Crane County

Cromwell and others' No. 15 University, Section 47, Block 30, was completed as a 150-bbl. well at 2,800-2,965 feet. Gulf Production Co.'s No. 46 McElroy, Section 200, Block F, had an initial production of 740 bbls. at 2,805-69 feet. Independent Oil & Gas Co.'s No. 2 University, Section 35, Block 30, had an initial production of 200 bbls. at 3,045-95 feet. Magnolia Petroleum Co.'s No. 16 University-Hardwick, Section 46, Block 30, made 300 bbls. at 2,823-80 feet.

Crockett County

William Shaffer and others' No. 2 University, Section 9, Block 47, was dry and abandoned at 2,666 feet.

Fisher County

Marland Oil Co. and Texon Oil Co.'s No. 1 Ligon, Section 3, Block 22, was drilled to a total depth of 3,850 feet but was dry and abandoned.

Howard County

Dixie Oil Co.'s No. 1 Clay, Section 154, Block 29, W. & N. W. Survey, was dry and abandoned at 3,347 feet. Marland Oil Co. and Texon Oil Co.'s No. 1 Gretta Connelly, Section 15, Block 33, was dry and abandoned at 4,400 feet. Magnolia Petroleum Co.'s No. 6 Dora Roberts, Section 136, Block 29, topped the pay at 1,317 feet and bottomed at 1,326 feet and had an initial production of 160 bbls. on the swab. Schermerhorn Oil Co.'s No. 1-B Dora Roberts, Section 137, Block 29, was drilled to a total depth of 1,893 feet with a production of 1,000,000 feet of gas at 1,879-84 feet. Ward Oil Co.'s No. 1 Dora Roberts, Section 137, Block 29, made 100 bbls. at 1,818-40 feet.

Pecos County

California Oil Co.'s No. 1 Smith, Section 37, Block 194, had an initial production of 70 bbls. per hour at 1,365-1,463 feet. Gulf Production Co.'s No. 6 Smith, Section 28, Block 194, had an initial production of 225 bbls. per hour at 1,495-1,675 feet. Same company's No. 7, on the same lease, came in making 179 bbls. per hour at 1,515-1,690 feet. Kirby Petroleum Co.'s No. 1 Turney, Section 11, Block 140, was dry and abandoned at 1,191 feet. Mid-Kansas Oil Co.'s No. 2 Smith, Section 31, Block 194, is making 100 bbls. daily at 1,115-1,245 feet. Same company's No. 13-A Yates, Vacancy Strip, at 962-1,057 feet, is making 200 bbls. per hour. The Mid-Kansas Oil Co. completed three wells on its Yates lease in Section 61, Block 1, as follows: No. 23-B had an initial production of 62 bbls. daily at 980-95 feet; No. 24-B made 75 bbls. daily at 940-1,035 feet; and No. 25-B made 407 bbls. in five hours at 1,005-40 feet.

Olsen's No. 1 Alph Harrol, Section 82, Block R-3, was dry and abandoned at 4,030 feet. Sun Oil Co.'s No. 1 Yates, Section 59, Block 1, was dry and abandoned at 1,225 feet.

Winkler County

Atlantic Oil Producing Co.'s No. 1-E Hendricks, Section 29, Block B-5, had an initial production of 5,342 bbls. at 2,670-2,797 feet. Independent Oil & Gas Co.'s No. 7-A-Hendricks, Section 34, Block B-5, made 120 bbls. at 2,890-2,927 feet. Magnolia Oil Co.'s No. 4 Hendricks, Section 29, Block B-5, at 2,885-97 feet is making 3,255 bbls. Murchison Oil Co.'s No. 3-B Hendricks, Section 35, Block B-5, had an initial production of 1,780 bbls. at 2,890-3,050 feet. Republic Oil Co.'s No. 1 Grisham-Hunter, Section 46, Block 26, made 1,674 bbls. at 2,749-2,870 feet. Southern Crude Oil Purchasing Co.'s No. B-1, T-67-1 Hendricks, Section 44, Block 26, after a shot of 380 quarts at 2,930-3,075 feet made 1,055 bbls.

Texon Oil Co.'s No. 1 Hendricks, Section 41, Block B-5, had an initial production of 4,300 bbls. at 2,613-2,941 feet. Turman & Maxwell's No. 1 Hendricks, Section 29, Block B-5, found the top of the sand at 1,260 feet, top of the lime at 2,384 feet, top of the pay at 2,879 feet and drilled to a total depth of 3,045 feet and the well had an initial production of 1,577 bbls. Pure Oil Co.'s No. 2-A Hendricks, Section 41, Block B-5, made 2,820 bbls. at 2,712-2,898 feet. Magnolia Petroleum Co.'s No. 2 Hendricks, Section 29, Block B-5, was completed as a 615-bbl. well, 30 per cent water, at 2,865-2,961 feet.

Roxana Petroleum Corp.'s No. 1-B Hendricks, Section 29, Block B-5, found the top of the sand at 1,330 feet, the top of the lime at 2,657 feet and was drilled to a total depth of 3,072 feet. The pay was topped at 3,069 feet and the well made 1,488 bbls. the first 24 hours through a half-inch choke.

Roxana Petroleum Corp.'s No. 3-C Hendricks, Section 29, Block B-5, was drilled to a total depth of 2,912 feet. The top of the sand was reached at 1,571 feet, lime was topped at 2,528 feet and the pay at 2,912 feet. The well had an initial production of 4,553 bbls. Southern Crude Oil Purchasing Co.'s Hendricks T-88-C-7, Section 28, Block B-5, found the top of the sand at 1,254 feet, the top of the lime at 2,433 feet and the top of the pay at 2,885 feet. The well was drilled to a total depth of 3,051 feet and after a 280-quart shot at 2,945-3,050 feet the well made 350 bbls. in 15 hours.

Scheercker County

Thomas Gray and others' No. 1 Luke Robinson, Section 25, Block M, was dry at 3,507 feet and has been abandoned.

PANHANDLE FIELDS

(Continued from Page 56)

W. Jackson, NE cor. NW Section 88, Block B-2, drilled to a total depth of 3,072 feet and flowed 130 bbls. per hour for three hours. The well slowed up and made 1,090 bbls. the first 24 hours from sand at 2,900 to 3,072 feet; 900 bbls. the second 24 hours and 800 bbls. the third 24 hours.

The Texas Company's No. 4 G. H. Saunders was drilled to a total depth of 2,758 feet where the well swabbed 58 bbls., the well then being cleaned out and flowed 885 bbls. from granite wash from 2,720-58 feet. The well had a show of gas at 2,380 feet and made 3,000,000 feet of gas at 2,430 feet which increased to 6,000,000 feet at 2,495 feet. The oil is 44 gravity.

Hutchinson County

Deal and others' No. 1 Johnson Brothers topped the pay at 2,830 feet and bottomed at 2,875 feet with an initial production of 157 bbls. Timms and others' No. 1 C. R. Garner found the producing sand from 3,020 feet to 3,115 feet and had an initial production of 150 bbls.

WICHITA FALLS DISTRICT COMPLETIONS

Archer County

Bowen and others' No. 1 Herron was dry and abandoned at 902 feet. Panhandle and Grisham's No. 3 Farmer made 12 bbls. of oil and 15 bbls. of water from sand at 1,543-47 feet. The Texas Company's No. 1 Garvey-C was dry and abandoned at 1,203 feet.

Throckmorton County

Falls Production Co.'s No. 4 Graham made 20 bbls. after a 5-quart shot at 1,810-18 feet.

Wichita County

Coleman & Coppock completed 15 wells in this county during the past week. On their Kemp & Kempner lease four wells were completed as follows: No. 1 topped the pay at 780 feet and bottomed at 795 feet and had an initial production of 15 bbls.; No. 2 found the pay from 779-86 feet and is good for 10 bbls.; No. 3 is also good for 10 bbls. in pay from 779-87 feet; No. 4 made 15 bbls. initial from 778-83 feet. On their Kemp-Kempner Lot 5 lease No. 1 is a 10-bbl. producer in pay found from 673-78 feet; No. 2 topped the pay at 674 feet and bottomed at 677 feet and is making 12 bbls.; No. 3 is making 15 bbls. from 670-78; No. 4 made 15 bbls. from 671-77 feet, and No. 5 made 12 bbls. from 673-81 feet. On their Kemp-Kempner Lot 4 lease six wells were completed as follows: No. 1 made 20 bbls. at 671-77 feet; No. 2 made 5 bbls. from 669-77 feet; No. 3 made 25 bbls. from 765-80 feet; No. 4 made 20 bbls. from 785-90 feet; No. 5 made 12 bbls. from 775-90 feet and No. 6 was drilled to a total depth of 778 feet and had a 2-bbl. showing from 770-78 feet and was plugged back to 750-60 feet and is making 10 bbls.

Atlantic Oil Producing Co. and others' No. 1 H. W. Barton made an initial production of 60 bbls on the pump from pay at 1,746½-48 feet. Dunaway and others' No. 1 Yarbrough (Baker) was dry at 497 feet and has been abandoned. Grayce Oil Co.'s and J. H. Cotton's No. 2 Kemp & Kempner, which is an old well drilled deeper, made 76 bbls. in 18 hours in pay found from 853-59 feet. Holbrook & Wood's No. 8 Kemp-Kempner, an old well drilling deeper, had an initial production of 86 bbls. the first 24 hours and 50 bbls. the second 24 hours in pay found at 849-57 feet. C. H. Lebow's No. 11 A. J. Schulz was put on the pump at 1,555-65 feet and made 34 bbls. the first 24 hours and 14 bbls the second 24 hours. O'Donohoe & Gates' No. 1 W. L. Hodges was dry at 1,894 feet and has been abandoned. Shappell Oil Co.'s No. 12 Kemp-Kempner topped the pay at 1,619-34 feet and made 15 bbls. The Texas Company's No. 341 W. T. Waggoner was a duster at 2,251 feet but its No. 342, same lease, pumped 80 bbls. in 16 hours in pay topped at 1,978 feet and bottomed at 1,980 feet.

Wilbarger County

Petroleum Producing Co.'s and others' No 2 Waggoner-A had an initial production of 210 bbls. at 2,380-2,405 feet. Phillips Petroleum Co.'s No 15 Waggoner-A topped the pay at 2,180-95 feet and made 15 bbls.; its No. 3 on the same lease had an initial production of 83 bbls. from 2,324-26 feet. Roxana Petroleum Corp.'s No. 4 Waggoner-D made 90 bbls. in pay found from 2,560-83 feet. Waggoner Refining Co.'s No. 4 Waggoner-C is producing 38 bbls. from the pays found at 2,334-39 feet and 2,384 to 2,405 feet.

Young County

Amerada Petroleum Corp.'s No. 1 Johnson was dry at 635 feet and has been abandoned. Four Oil Co's No. 3 McGaghren was a duster at 1,145 feet and has been abandoned. Rannell Oil Co's No. 2 Jack-C made 98 bbls. in pay found from 515-57 feet. Powell Oil Co.'s No. 7 Morrison was dry at 2,251 feet and has been abandoned.

RANGER DISTRICT

Brown County

Coats & Wall's No. 1 Murphy was dry and abandoned at 1,735 feet. Cranfill & Reynolds' No. 1 Hill was dry and abandoned at 1,307 feet. Same company's No. 1 Newton had an initial production of 72 bbls. at 1,129-50 feet. Pandem Oil Co.'s No. 2-B Curry made 330 bbls. at 1,109-1,122 feet; this is 43 gravity oil. Phillips Petroleum Co.'s No. 10 Newsome had an initial production of 125 bbls. after a 15-quart shot at 1,294-1,303 feet. Syndicate Oil Co.'s No. 1 Curry had an initial production of 190 bbls. at 1,110½-20½ feet. Aldridge's No. 1 Woods was dry at 660 feet and abandoned. Cranfill & Reynolds' No. 1 Whitehead was dry at 712 feet and abandoned. Forest Oil Co.'s No. 1 Moran was dry and abandoned at 1,142 feet.

Callahan County

Mook and Texas Oil Co.'s No. 4 Baum-EE had an initial production of 4 bbls. Young & Alexander's No. 1 Wheeler was dry at 1,208 feet and abandoned.

Coleman County

Dallas Petroleum Co.'s No. 1 Babbington had an initial production of 15 bbls. after a 30-quart shot at 1,034-46 feet. McChesney's No. 1 Story was dry at 1,519 feet and abandoned. Moore's No. 1 Hightner is an abandoned location.

Eastland County

Dendell and others' No. 1 Collins was dry and abandoned at 1,450 feet. Rattlesnake Oil Co.'s No. 1 Marshall was a duster at 3,740 feet and has been abandoned. Roat and others' No. 3 Watson made 5,000,000 feet of gas at 3,700-18 feet and 20 bbls. of oil at 3,730-40 feet.

Shackelford County

Harris and others' No. 2 McLemore was dry and abandoned at 751 feet. Roeser & Pendleton completed three wells during the past week as follows: 36-A-60 Cook had an initial production of 240 bbls. at 1,296-1,316 feet; 37-A-60 Cook had an initial production of 147 bbls. at 1,318-28 feet; 41-A-60 Cook had an initial production of 351 bbls. at 1,226-58 feet.

Stephens County

Pender Production Co.'s No. 6 Keel found the black lime at 3,224-27 feet and have an initial production of 100 bbls. of oil and 300 bbls. of water. Phillips Petroleum Co.'s No. 2 Post was dry and abandoned at 2,270 feet.

SHREVEPORT MARKET GAINS IN STRENGTH

SHREVEPORT, La., Feb. 6.—While gasoline continued to gain strength in the Shreveport territory during the past week it has not accumulated sufficient to cause any advance in price. Fuel oil, 16-22 gravity, is the only product that changed during the period going from 97½ cents to $1 per barrel, with higher gravity selling at $1.05 as quoted by one refiner.

Practically all plants in this territory are sold up for their February gasoline output, even on an increase over last month's run of crude oil to stills. Several refiners have been in the market for the product to fill their orders.

Kerosene is unchanged at 4¾ cents and gas oil quoted at 3 cents is expected to gain strength as the rice season opens in South Louisiana and Arkansas to offset the weakness it would display due to falling off in demand in northern consuming centers with the coming of warmer weather. Last week there were rumors of an impending advance in natural gasoline prices but it had not developed Monday, while on the other hand it was stated that there is plenty of material available at prevailing prices.

FRICK-REID CHANGES

Several changes in the personnel of the Frick-Reid Supply Co. have been announced by the officials of the company. C. E. Swindler, assistant manager of sales has resigned to assume charge of the Tulsa sales division of the Jones & Laughlin interests, specializing in oil field tubular goods.

V. V. McGrew, district sales manager of the company in the Louisiana-Arkansas district has been transferred to West Texas and will be located at Big Springs. J. R. Hammond, store manager at Houston, Tex., has been transferred to Seminole, Okla., where he will be store manager. R. J. Macon, formerly treasurer of the Gladys-Belle Oil Co., has become identified with the Frick-Reid credit department.

Robert McCoy, Jr., sales manager, is now in Texas making a trip of inspection over the fields.

PRAIRIE P. L. SHIPMENTS

The Prairie Pipe Line Co.'s crude oil shipments (deliveries to refiners) in the month of January were 5,394,759 bbls., a daily average of 174,025 bbls. This did not include the company's shipments to the Gulf Coast by way of the Pure Oil Pipe Line, of which the Prairie is a part owner. The December shipments were 5,344,811.13 bbls. or 172,413 bbls. per day.

Humble Co. Denies Demanding Contract Over Long Period

By Neil Williams

HOUSTON, Tex., Feb. 4.—Reports that the Humble Oil & Refining Co. has been demanding contracts for the sale of oil to it over a long period of time before it will connect to any producer in the West Texas fields were denied by officials of the company the past week.

The Humble officials explain that when the University Field in Crane County assumed large proportions, the company constructed pipe line facilities from McCamey to that field when it was a burden to handle the oil tendered by the company's customers. No contracts were demanded at that time.

Recently the situation in the University Field has changed in that production is declining and the facilities of the Humble company no longer are taxed in that field. Also the Winkler County Field to the northwest is assuming major proportions and oil producers who ordinarily are served by the Humble are urging the company to take care of their production in the Winkler County area.

To handle this situation, the Humble states, the company must extend the line, which at present terminates at the University Field, to Winkler County, and in order to make provisions for the Winkler County customers it must know what oil it is to continue to run from the University Field.

The Humble has expressed itself as anxious to continue to run the University Field oil, but, as oil from this field obviously appropriates facilities, which in the absence of such oil from the University Field would be devoted to Winkler County, the company has asked its customers in the University Field whether they desire to continue to run their oil to Humble. Thus, the Humble has asked its customers in the University Field to contract some fraction of their production to the Humble company.

The Humble in addition stated:

"The Humble company today is paying for West Texas oil as high a price as any other purchasing agency and pays a higher price than is received by many producers in Winkler County for their runs to other purchasing agencies, such prices being in some instances as much as 20 cents per barrel more than is being paid by other competing agencies.

"The Humble company has gone even further and has placed its market for West Texas oil at the disposal of West Texas producers ratably so that every producer in such cases receives pro rata of the market which the Humble company is able to afford for this oil. For instance, in the proration of the Yates Pool only 6 per cent of the Humble's pipe line capacity is allotted to the production of Humble Oil & Refining Co., and 94 per cent of it is shared ratably by all the other producers in the field."

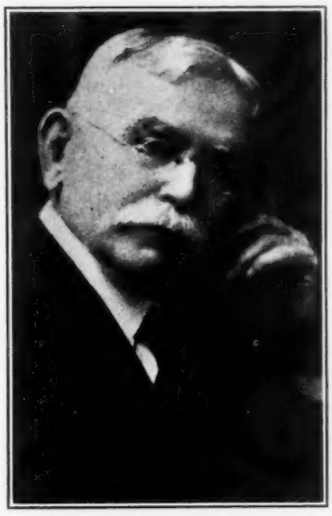
PIONEER VALVE MAKER, DANIEL KENNEDY, DIES

Daniel Kennedy, president of the Kennedy Valve Manufacturing Co., who died in Hot Springs, Ark., on January 14, was in his eightieth year. He came to America from Ireland as a youth of 17.

Mr. Kennedy's first business venture was in connection with the old Boston Dry Dock, built in the Erie Basin, Brooklyn, N. Y., in 1877, and now owned by Robbins Dry Dock & Repair Co.

The valve equipment for controlling the flow of water in and out of this dock was an important factor in its operation. In competition with designs submitted by valve builders of that period, those of Mr. Kennedy were chosen, and he was awarded the contract for building the gate valves in sizes ranging from 48 inches down, conditioned upon making the installation within a given time and assuring successful performance. These valves, located at the bottom of a 35-foot pit, were placed on time, met every requirement and today are still functioning to the satisfaction of engineers now in charge.

This contract established the firm of Daniel Kennedy with small shop in New York. The business grew till it occupied



Daniel Kennedy

a four-story building. By 1890, greater manufacturing facilities were required and the plant was moved to Coxsackie, N. Y. The firm was then incorporated and the name changed from Daniel Kennedy to the Kennedy Valve Manufacturing Co. Continued rapid expansion required a second move in 1907, at which time the present large modern plant occupying 20 acres was built in Elmira, N. Y.

Besides his wife, Mr. Kennedy leaves three sons, Matthew E., J. C. and Clarence H., treasurer and general manager, works manager, and general sales manager, respectively, of the Kennedy Valve Manufacturing Co.; and three daughters.

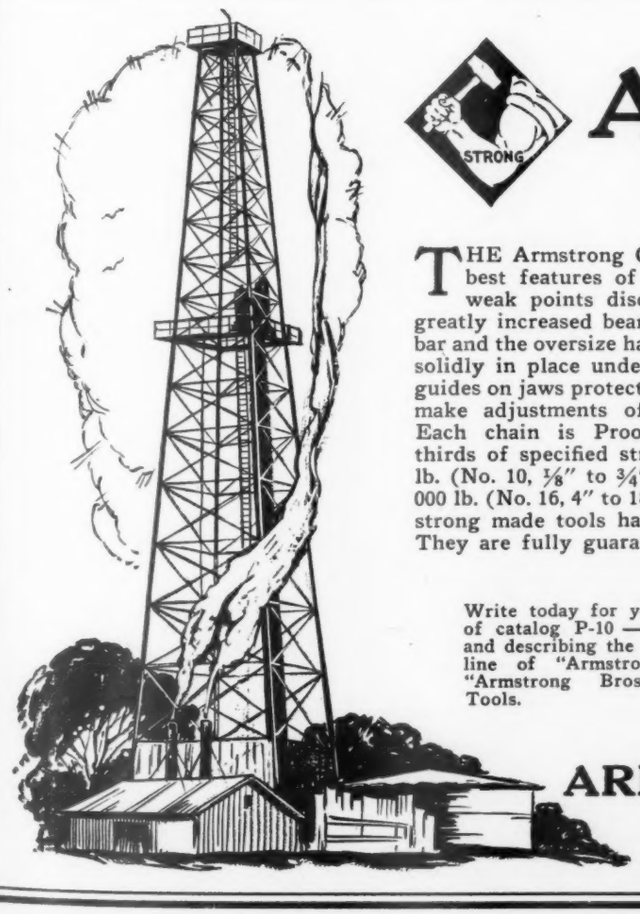
OKLAHOMA P. L. STATEMENT

The Oklahoma Pipe Line Co.'s statement for January shows crude oil runs from Kansas and Oklahoma of 3,648,712.81 bbls., an average of 117,700.41 bbls.; deliveries of 3,398,518.50 bbls., an average of 109,629.63 bbls. per day; stocks, 2,945,120.03 bbls. This indicates an increase in runs over December of 123,820 bbls., but a decrease of 358,353 bbls. in deliveries and an increase of 239,428 bbls. in crude stocks.

NO PROSPECTS OF DECLINE IN CALIFORNIA

(Continued from Page 45)

into the San Joaquin Valley Basin, a vast area north of the Tehachapi Mountains which has almost unlimited possibilities as far as future production is concerned. The map of southern San Joaquin Basin accompanying this resume will give some idea of the enormous potentiality of that section of the State from which the greatest part of California's future production must come. Particular attention is directed to the location of the various producing fields with respect to the edge of the basin and the recent tendency to drill out in the valley floor instead of hugging the rim of the basin on each side as has been the predominating influence heretofore. The two outstanding areas under development in the San Joaquin Basin at the present time, Union Avenue and Fruitvale, are indicated on the accompanying map by numbers 14 and 15, while the location of the new field at Edison, recently opened up by the General Petroleum, is shown by No. 13. The Edison Field is located along the



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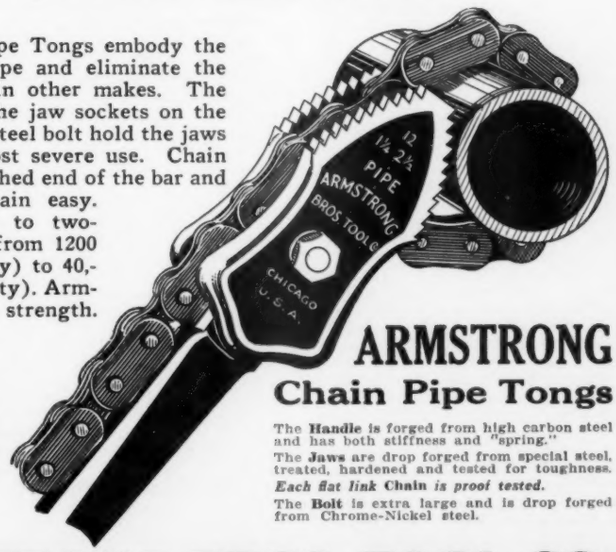

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eastern edge of the San Joaquin Valley but Union Avenue and Fruitvale are both located out in the floor of the basin, each being marked by a gently rolling plain which in some places is hardly perceptible to the naked eye.

An Enormous Oil Reservoir

The San Joaquin Valley, a huge elongated basin which attains a maximum width of approximately 60 miles across, has produced a total of 1,415,400,983 bbls. of crude up to the present time and with the center or floor of the basin hardly scratched as far as favorably located wildcatting is concerned, every indication points to the probable discovery of additional new fields which might be expected to produce at least as much oil in the future as this section of the State has already chalked up over a long period of years. Geologically the southern San Joaquin Valley is very similar to Los Angeles Basin, although it is, of course, many times larger in area. Both have at their centers organic rocks approximating 5,000 feet in thickness that generate oil, above which there are others of a similar thickness which contain soft sands in which the oil accumulates. The central part of the southern San Joaquin Valley is over three times larger than the Los Angeles Basin and is practically untested as far as carefully located wildcats are concerned. It is this vast area which contains a very large part of California's future crude oil production.

Geology of San Joaquin

The San Joaquin Basin is primarily a great block of the earth's crust which has been tilted westward. This tilting brings up granite on the east but to the west sedimentary rocks appear and increase in thickness until far out in the center of the basin they are thicker than any drill can penetrate at present. This tilting accounts for the granitic outcrops east of the Mount Poso and Round Mountain Fields and deep tests in these two fields have indicated the absence of lower horizons as the bit has invariably hit the underlying granite. With one or two exceptions most of the present producing fields of the San Joaquin Basin have resulted from the development of exposed anticlinal folds which are marked on the surface in nearly all instances by low rolling hills although in a few cases there are no surface indications, a typical instance being the buried anticline of the Belridge Field. As time goes on it will become necessary to prospect for these hidden structures and the center of the San Joaquin Basin will undoubtedly yield new fields, or series of new fields when this type of work gets under way, although new districts will be located in particular areas and almost certainly along narrow lines of horizontal sheering. Only wildcats located along such lines will have a reasonable chance for commercial production. The greater part of the production secured in the San Joaquin Valley up to date has come from a series of fields along the west side of the basin extending from Coalinga in the north to Wheeler Ridge in the south, a distance of about 100 miles.

Ventura Basin's Thick Sands

The Ventura Basin, while it is not as large in area as the San Joaquin Valley, contains the thickest oil formations in California and perhaps in the world. The Ventura Avenue Field, which is the largest and most productive area discovered in Ventura Basin up to date, has enormous drainage area and thickness of oil sands. The recently discovered field at Rincon is located about 6 or 7 miles west of the prolific Ventura Avenue Field and while it too may have exceptionally thick formations at a lower depth than that now being prospected it is the consensus of opinion that it will not compare with either the area or total production of Ventura Avenue. Wildcatting activities and prospecting work in the Ventura Basin, like similar operations in the San Joaquin Basin, have increased by leaps and bounds during the past year and it is quite possible that additional fields my be opened up in this section of the State before 1928 draws to a close.

In checking over the production outlook in California for 1928 one can not but be impressed by the probability of a continued excessive production of crude oil, although the situation does not look particularly threatening at the present time. Long Beach, Seal Beach and Rincon hold the key to the immediate future and if all three of these fields go over the top according to schedule slightly improved conditions may result during the latter part of 1928. One must not get the impression from this that conditions will be permanently and substantially improved thereafter. The situation in California is a rather complex one and for this reason it is not possible to set even an approximate dead line for excessive production. It is almost a certainty that additional fields will be opened up between now and the end of the current year but this type of work will not prove of any consequence in 1928 as it usually takes a new field at least a year to reach its peak unless production is secured at exceedingly shallow depths. And so while I expect to see several new fields opened up during the next 11 months they should not prove unduly embarrassing this year. Union Avenue, Fruitvale and other promising wildcat areas may come in but the exceptionally large acreage being developed almost precludes the addition of more than 50,000 bbls. per day of new production before the end of the current year, a part of which will be offset by the normal settling in older fields.

Long Beach, Seal Beach and Rincon will all probably reach higher levels later this year and the production of this trio may be augmented by additional crude from Ventura Avenue and a further minor increase at Kern River and perhaps one or two other fields. A part of this new production will of course be offset by a drop in other areas which have been gradually declining for some time. Additional drilling out along the Kern Front will probably result in the finishing of a number of new wells during the rest of this year and the daily production of this field will naturally reflect their completion although the anticipated gain will probably not exceed 10,000 bbls. per day at the most. Approximately $10,000,000 has been expended in new development and the acquisition of additional properties in Kern County during the past year, $3,000,000 of which was paid by the Shell and Honolulu Consolidated for acquisition of productive acreage in the Mount Poso and Round Mointain fields. Leasing activities were exceptionally brisk all during the year and an additional several million dollars were expended in securing potential oil land and the drilling of a large number of wildcats at numerous points throughout the county. The possibility of discovering additional fields in the southern San Joaquin Basin will undoubtedly lead to considerable wildcatting during 1928 and the expenditure made in 1927 will probably be surpassed in the next 10 or 11 months of the current year.

Last Half May See Decline

Deep sand exploitation in the Long Beach, Seal Beach and Rincon Fields will probably keep State production at a relatively high level for the first half of the current year and while it is impossible to predict future production with any degree of accuracy for more than six months in advance recent developments indicate that there is a possibility of an appreciable decline during the latter part of this year provided, however, that none of the existing curtailed production is opened up in the meantime. There are 2,526 producing wells shut in at the present time and about 20,000 bbls. of the total daily restriction of 78,226 bbls. is refinable crude. California's total production has been averaging in the neighborhood of 615,000 bbls. per day for the past several weeks but it may go to 675,000 bbls. later this year before declining if deep drilling proves as productive as anticipated.

The production situation in California depends to a large extent upon how long operators hold back development or dormant deep zones in proven fields exclusive of Long Beach, Seal Beach and Rincon and, while a very commendable spirit of co-operation has been exemplified up to date there is always a possibility that some one may kick over the traces at a most inopportune time. The total State production in 1928 may not be affected by this deep drilling but it is bound to come some day and for this reason there can not be any decidedly permanent improvement until this threat is out of the way. In addition to the lower horizons now being exploited at Seal Beach, Long Beach and Rincon deep zones have actually been found at Dominguez, Rosecrans, Coyote, Inglewood and in the older section of the Seal Beach Field. No development work is being prosecuted in the latter group at the present time and while Dominguez, Rosecrans, Coyote and the older section of the Seal Beach Field may be kept under control indefinitely due to the limited number of operators holding productive acreage, Inglewood presents a rather discouraging picture in as much as large production may be anticipated when the lid is lifted and deep sand exploitation gets under way, due to the varied interests involved and also to the fact that this second horizon is located at a relatively shallow depth, around 3,500 feet. The upper zone in this field reached a high of 115,000 bbls. per day on August 7, 1925 due to rapid development and it is quite possible that the lower horizon may even exceed this figure. The lower zone in this field is bound to become an important factor in future production and this is one of the reasons why it is impossible to predict future production more than six months ahead.

ROCKY MOUNTAIN AREA

(Continued from Page 242)

tools. The Texas Production Co.'s No. 1 Davis, Section 15-26-113, is underreaming at 1,320 feet.

In Fremont County, the Texas Production Co.'s No. 1, Section 1-33-95, Alkali Butte Dome, is running 10-inch at 1,705 feet. The Producers & Refiners' No. 1, Section 33-34-92, Muskrat Dome, is drilling in blue shale at 2,138 feet.

Utah

Utah operations revealed no outstanding developments the past week. The Utah Southern Oil Co.'s No. 1 J. L. Shafer, Section 36-26-20, on the Cane Creek Dome, has overcome the difficulties arising from quicksand and has cased off that formation and is now in solid formation at 100 feet. Same company's No. 1 Canyon, Section 18-41-19, on the East anticline in San Juan County, is drilling in broken black lime at 1,570 feet. The Embar Oil Co.'s No. 1 Big Six, Section 34-25-21, on the Moab structure in Grand County, is drilling in a hard limey shale formation at 5,163 feet. Texas Production Co.'s No. 1 Shipley, Section 5-27-14, Sweetwater Dome in Wayne County, is drilling at 2,830 feet after lowering the 10-inch through the cavey formation that gave considerable trouble. The Midwest Exploration Co.'s No. 3 Ashley Creek, Section 23-5-22, Uintah County, has reached old bottom at 1,655 feet where the 10-inch was set before drilling into the Morrison sand in which heavy gas production is expected. Drilling has been resumed and the hole is now in hard gray sand at 1,658 feet. The objective is the Sundance, expected under 2,000 feet. Same company's No. 1 Early, Section 13-4-6, Duchesne County, is drilling at 2,790 feet in hard shaly lime. Western Venture Corp.'s No. 1 Kruvieda, SE Section 6-5s-21e, Uintah County, 7 miles west of Vernal, has commenced spudding. Same company is hauling rig for a test in Section 8-5s-21e, Dog Valley structure. Maud Ellen Oil Co., Section 28-3s-21e, is reported drilling. Diamond Oil Co.'s No. 3, Section 29-8-3, Diamond Fork Canon, failed to find a suitable landing place for the 15½-inch casing at 150 feet and will carry that size down several hundred additional feet.

Montana

The Sunburst Oil & Refining Co. found a second strike of gas and a showing of oil in the wildcat drilling on the Falt Coulee Dome near the Bear's Den structure, north central Montana. The oil and gas came in at 2,881 feet and the oil coming in with the gas gives strong indication that Flat Coulee is going to prove a new field. The well is still about 150 feet above the Ellis Madison contact where the Ellis sand should be found, so the oil and gas are coming from a stray sand. The gas will make a production estimated at 15,000,000 feet, and the showing of oil was not commercial.

Near Poplar, Mont., a wildcat test that was started last summer has again started drilling after the shutdown for the winter. It is being drilled by the Pioneer Oil Co. on a block of leases south of Poplar, and the hole is now at 2,715 feet.

The Summit Oil Co. of Sunburst Field has taken some holdings in the Oregon Basin Field in Wyoming and will start a well on the block at once. This makes the fourth operating company in Sunburst to become interested in Oregon Basin within the past few months.

E. K. Cheadle, J. W. O'Haire and Slim Hungerford have taken over the holdings of the Madeline Oil Co. in Section 33-35-4. This block has a well drilled to about 500 feet deep and the new owners propose to complete the hole to the Ellis contact at about 1,500 feet. In view of the recent strike on the west side of the field, this lease appears worthy of testing.

In the Sunburst Field the work is routine, the new strike on the west side of the field, the Majestic Davis No. 1 is holding up around 290 bbls. daily but some trouble has been had with the pipe line breaking. This line takes the oil from the tank battery and sends it to the refinery at Sunburst.

The Great Northern Utilities Co. has started ground work on the large plant at Shelby that is to furnish power and light for Shelby and nearby cities and towns and power for the Sunburst Field. The plant as now outlined will have a capacity of 33,000 kilowatts and is to cost $500,000.

Contrary to first reports the Homestake Exploration Co. lost the suit instituted to recover tax on royalty oil collected by Toole County for the past two years. The suit involved three separate issues and the state Supreme Court decided in favor of Toole County in the two major issues, the disputed tax in the two actions amounting to approximately $4,000. The Homestake case involved different issues from the Fulton case, which was decided in favor of the oil company on the ground that the 1927 law on which it was based was unconstitutional. The tax in the Homestake case was collected under laws in force prior to the passage of this measure and the decision of the Supreme Court will no doubt establish a precedent in other cases based on the collection of tax on royalty oil.

The Montana County Commissioners Association met with representatives of the Montana Oil & Gas Association the past week to discuss taxes on oil field property. No definite decision was reached, but the oil men were hopeful that several vexing questions would be ironed out in subsequent meetings.

ROCKY MOUNTAIN PRODUCTION
Runs From the Field

Wyoming	
Salt Creek	43,360
Big Muddy	2,750
Grass Creek	2,520
Elk Basin	1,160
Greybull	10
Dutton Creek	...
Rock River	2,650
Lance Creek	650
LaBarge	820
Mule Creek	...
Poison Spider	150
Hamilton	1,220
Osage	260
Lander	750
Ferris	30
Byron	40
Lost Soldier	2,920
Simpson Ridge	10
Total Wyoming	59,910
Montana	
Cat Creek	1,780
Lake Basin	150
Kevin-Sunburst	8,500
Total Montana	10,430
Colorado	
Florence	384
Moffat	1,305
Fort Collins	3,061
Iles Dome	725
Rangely	100
Tow Creek	476
Boulder	25
Total Colorado	6,676
New Mexico	
Rattlesnake	255
Hogback	580
Cap Rock	211
Table Mesa	316
Artesia	1,357
Total New Mexico	2,699
Total Rocky Mountain	79,537

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Scope of S. A. E. Viscosity Numbers

Feasible Method to Assure That Car Owners Will Obtain Oils Having Specifications Recommended by Automobile Manufacturers

By E. W. Upham*
Chairman, S. A. E. Lubricants Division.

MARKETING OF LUBRICATING OILS

Mr. Upham summarizes his discussion of the automobile industry's position relative to the marketing of lubricating oils as follows:

1. The automobile manufacturer believes in the use of high grade well-refined lubricants, but of a definite body or viscosity range.

2. They believe in the car owner using trade name oils but do not want to recommend by trade name.

3. Recommending by the present system of grading of light, medium and heavy is ineffective due to looseness of meaning and lack of standardization.

4. The S.A.E. viscosity numbers provide a definitely standardized terminology for the grading of lubricants on the basis of viscosity by which the automobile manufacturer can tell the dealer and the car owner the body of oil he recommends to be used.

5. The placing of the S.A.E. numbers on the containers and their addition to the lubrication charts issued by the oil companies is a logical development and is essential to the purchase by the car owner of the viscosity of lubricant recommended by the automobile manufacturers.

In order to show why the lubricating oil viscosity numbers should be adopted, one must first go back and find out why lubricants needed to be standardized. To tell the story correctly, the whole history of lubricating oils would have to be given. The development of the present numbering system is the result of considerable labor on the part of the lubricants division of the standards committee and was only accomplished by the co-operation of the technical men in the oil industry. Then there is the application of the system, and what it will accomplish.

The most important property of an oil in determining suitability for use is the viscosity of "body." The real lubricating value of an oil is dependent on its viscosity at the temperature it is used. Viscosity is a factor in cold weather starting. It is also a factor in oil consumption.

This has long been recognized and viscosity was made the basis for the grading of lubricants by the refiners and oil distributors. The terms light, medium and heavy to name the grade were naturally chosen. As the demand for more grades grew, names for higher and for intermediate ranges were added, such as extra heavy, special heavy, super extra heavy; and extra medium, medium heavy and special medium. The result was confusing. One company's extra heavy would be of higher body than their special heavy, while this order would be reversed with another. Some adopted the letters of the alphabet as an index to their grades, either at the beginning or at the end of the alphabet, others used numbers.

While there was a general relationship between the grade of lubricants of the different companies, that is a medium oil of one company had about the same body as another company's medium, this was not always so. Company "X" markets an oil labeled heavy, company "Y" markets an oil of a heavier body and labels it medium. A number of like cases could be given.

This situation is not pictured in order to criticize the oil companies or the general oil marketing industry. It was a development of years and a development of companies acting individually and in competition; and there was, no doubt, good reasons at the time for the adoption of the particular nomenclature used by any one company. The general picture is given only to show the need of standardization.

The standardization has been effected by the lubricant engineers working together with the automotive engineers in the S.A.E. committees and in the A.S.T.M. committees. The first standards adopted by the society in 1923 were based on government lubricating oil specifications and were never widely used. This whole subject has been admirably covered in an article by Mr. Mougey which appeared in the April, 1926, issue of the Journal.

The present lubricating oil viscosity numbers are the results of combined efforts of the D-2 committees of the A.S.T.M. and the lubricants committee of this society. They were issued as recommended practice in 1926.

S.A.E. Practice

In the work of the lubricants division the question of standardizing the grading of light, medium, heavy, special heavy, etc., naturally came up. That would be fine if it could be accomplished, but such grading is hopelessly tied up with trade names. The oil companies have adhered to this practice for years and it is too much to ask for a change. In fact, they simply won't change.

One point that is to be emphasized is that this numbering system represents a change from the original idea of the standards, in that instead of "purchasing agent" specification, they are a standardized grading based on viscosity only. In other words instead of being an aid in the purchase of lubricants by the automobile manufacturers, they are essentially an effective means for recommending lubricants by the car manufacturers to the dealer and car owner.

Speaking from the experience of our own company, besides the problem of how best to handle the recommendations in the instruction books, there was correspondence with dealers and individual owners covering a wide range of questions on oils in general. We do not invite or encourage dealers to submit samples. Nevertheless, the samples would arrive and some action on them was required. The usual determinations of physical constants were made and reply given as to the grade we would advise using on the basis of viscosity and pour test, stating that the choice based on the quality or degree of refinement of the lubricant was up to the dealer to decide.

Instruction Books

At a recent meeting of the division a survey was made of the instruction books of several automobile companies. In general, the methods used could be classified under three heads.

1. Listing the trade names and grades of the lubricants considered suitable.

2. Listing one trade name and grade and recommending that one or an equivalent.

3. Describing in general terms the lubricant desired. For example, a medium, well-refined oil.

The first method involves endless labor on the part of the testing laboratory and tends to be discriminating due to inability to cover all lubricants sold. The objections to the second method are obvious. In certain cases some oil companies have considered these two methods to be so discriminating that they have declared a boycott on the automobile companies to cause them to change their recommendations.

The disadvantage of the third is that a general description of a lubricant cannot be made sufficiently definite and if an attempt were made to make it definite, it would be technical and the average car owner would not understand it.

Automobile manufacturers admittedly build cars that will operate successfully with average lubricants that are on the market However, they realize that the use of well-refined lubricants of proper viscosity mean greater satisfaction to the owner, better oil mileage and reduced carbon deposits.

Favor Trade Names

Automobile manufacturers generally believe in trade-name lubricant buying by the car owner, as it tends toward the use of the higher grade lubricants. There is always the filling station operator who cannot resist the easy profits of buying low grade oils and selling at the standard prices. Manufacturers of a trade-name product take a pride in that name and I believe honestly attempt to establish a standard and adhere to it in quality and uniformity. Their lubrication charts, while primarily for the purpose of helping sales, nevertheless, were usually based on recommendations from the car manufacturers, when obtainable, and helped in the correct body of oil being purchased.

The car owner who is content in buying a "quart of oil" hasn't our full sympathy, but nevertheless, as a driver owner he has our interest. Such an individual may not read the instruction book, then stamping the viscosity number in the oil filler cap would help considerably.

Seasonal or temperature recommendations can be covered better by the use of the S.A.E. viscosity numbers. The wording in our instruction books is as follows:

"For correct engine lubrication a high-grade, well-refined oil is essential. As a guide to the proper viscosity or body of oil for summer and winter conditions, which vary for different territories, the lubrication charts of the reputable oil companies should be consulted. In general an oil having the body of S.A.E. viscosity number 30 is recommended for summer use and for winter use, except where zero temperatures are encountered. For the latter condition, an oil with a low cold test and with a body of S.A.E. viscosity number 20 or 30 is recommended."

Results Satisfactory

Recommendations in our instruction books on the basis of the lubricating oil viscosity numbers has been too recent to accurately judge of the results. Our service department, however, is well pleased and I have yet to hear of any opposition.

The use of the S.A.E. viscosity numbers by the lubricant distributors should not interfere with their present trade name and grading. They supplement the trade name grading and enable the car owner to buy oils of the viscosity or body the car manufacturer recommends and of the particular brand or trade name which he himself is convinced he wants.

Adoption of the S.A.E. viscosity numbers by the automobile manufacturers and by the oil distributing companies is progressing very satisfactorily.

One of the largest producers of automobiles besides our own company have used them in their latest instruction books. Assurances have been given by

(Continued on Page 270)

LUBRICATING OIL VISCOSITY NUMBERS

The following table gives the viscosity numbers recommended by the lubricants division of the Society of Automotive Engineers, Inc., for crankcase lubricating oil:

Viscosity Number	Viscosity Range*—Saybolt Universal, Sec. At 130 Deg. F.	At 210 Deg. F.
10	90–115	.....
20	120–150	.....
30	185–220	.....
40	255–	–70
50	.....	75–95
60	.....	105–120

*Oils with viscosities falling between the ranges specified shall be classified in the next lower grades.

From the report of the miscellaneous division, adopted by the society June, 1911. Revised by the lubricants division March, 1923, and July, 1926.

Discussion

For the lighter oils the temperature at which the viscosity is determined was chosen as 130 degrees Fahrenheit in order to decrease as much as possible the differences due to the viscosity temperature characteristics of oils from different geographical sources. If two oils from different geographical sources were selected so that they had the same viscosity at 210 degrees there would be an appreciable difference in their viscosities if they were compared at a much lower temperature such as 100 degrees Fahrenheit. On the other hand if they were selected so they had the same viscosity at 100 there again would be an appreciable difference if they were compared at 210. By selecting a temperature intermediate between these two points such as 130 degrees Fahrenheit and having both oils of the same viscosity at 130 degrees Fahrenheit the differences in viscosity at other temperatures both higher and lower are decreased.

For the oils which are heavy to have a high viscosity at high temperatures the temperature at which the oils are compared is 210 degrees Fahrenheit. It will be noted that the specifications provide minimum and maximum limits for each S.A.E. viscosity number. The minimum for the higher viscosity numbers is higher than the maximum for the next lower viscosity number. This appears to make a gap which would exclude certain oils whose viscosity falls between two viscosity numbers. However, there is a footnote to the specification which provides that oil whose viscosities come between the ranges specified and thus appear to be excluded are classified in the next lower viscosity number. This provision makes it possible to classify absolutely all oils under the S.A.E. system regardless of peculiarities of the oil or the geographical sources of the crude from which they are derived.

S.A.E. meeting, Detroit. Mr. Upham is connected with Chrysler Corp.

Multiple Recorders Cost Less

Engineers agree that for best process results under average conditions an individual, single-record recorder should be used to measure temperature at every point in stills, towers and lines where correct temperature maintenance is important. But—if the budget won't cover—why not buy one or two Brown MULTIPLE Recorders? Each instrument makes 2 to 12 records simultaneously on one chart. Strong, contrasting record colors insure easy reading of each record.

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Of Interest to Sales Departments

Large Increase in Domestic Gasoline Consumption in 1928

The domestic gasoline consumption in 1928 will total 13,705,636,000 gallons, according to an estimate by the statistical department of the Western Petroleum Refiners Association. This will mean an increase of 1,162,672,000 gallons over the consumption in 1927, the last month in 1927 being estimated.

The estimate is based on an increase of 2,305,746 in the number of motor vehicles registered. The increase in gasoline consumption for 1928 is less than the 1,546,818,000 gallons increase of 1927 over 1926. In its estimate, the association points out that the domestic gasoline consumption is gradually increasing.

The following table summarizes the association's estimate:

Motor Vehicle Registration as Per Bureau of Public Roads		
Year—	Jan. 1	Dec. 31
1917	3,512,996	4,983,340
1918	4,983,340	6,146,617
1919	6,146,617	7,565,446
1920	7,565,446	9,231,941
1921	9,231,941	10,464,715
1922	10,464,715	12,239,853
1923	12,239,853	15,092,177
1924	15,092,177	17,595,373
1925	17,595,373	19,954,347
1926	19,954,347	22,001,393
1927	22,001,393	*23,321,477
1928	*23,321,477	*25,627,223

*Association estimate.

Short Talks on Specifications

By W. T. Ziegenhain

NEUTRALIZATION NUMBER

Petroleum products may be either acid or alkaline and the neutralization number is intended to show how acid or alkaline an oil is by indicating the amount of a standard chemical needed to neutralize a definite quantity of the oil. A more exacting definition of the neutralization number is that it is the weight of potassium hydroxide, expressed in milligrams, required to neutralize 1 gram of the oil. When the oil is already alkaline, the neutralization number is determined by the amount of acid needed to neutralize it but the answer is shown as the equivalent weight of potassium hydroxide.

The importance of this test is probably greater than the prominence given it in the daily routine tests and it is not discussed very often in purchases. It is of particular importance in judging lubricating oils for an oil with a high neutralization number is likely to give trouble in forming gums, pit the cylinder walls and bearings, or emulsify badly. The test will ordinarily show when the oil has been poorly chemically treated at the refinery. If the acid which is used in treating the oil at the refinery is not completely removed the oil will show a high neutralization number and, likewise, if the oil has an excess of caustic resulting from an inefficient washing or filtering operation it will have a high neutralization number.

The test procedure used is simply one of titrating the water and alcohol solution of the oil with a standardized acid or base and the amount of the standard chemical used to neutralize the solution is the index of the neutralization number.

The ordinary method prescribes that approximately 20 grams of the oil be accurately weighed and agitated violently with 100 c.c. of a solvent made up of equal parts of neutral alcohol and distilled water. The mixture is heated to boiling during the agitation and then 1 c.c. of phenolphathalein is added as the indicator and the solution is titrated to a sharp pink color. A color change will occur when the solution changes from acidic to basic but should the oil be basic to begin with, as shown by the pink color when the phenolphthalein is added, a definite excess of a standard acid solution is added and then the excess acid is titrated as described before.

The weight of the potassium hydroxide used in neutralizing the acid may be calculated from the volume of the chemical in milligrams, divided by the number of solution used and this weight, expressed grams of oil taken as the original sample is the neutralization number for that oil. The exact procedure is given as a tentative method by the American Society for Testing Materials under the serial designation D 188-27 T.

	Average Motor Vehicles Per Car in Use Year	Domestic Demand for Refinery Gasoline (Gallons)	Indicated Domestic Car in Use (Gallons)
1917	*4,248,168	2,365,146,000	557
1918	*5,564,979	3,129,252,000	562
1919	*6,856,032	3,434,886,000	501
1920	*8,398,694	4,250,736,000	506
1921	*9,848,328	4,516,050,000	459
1922	*11,352,284	5,372,052,000	473
1923	*13,666,015	6,583,332,000	482
1924	*16,343,775	7,770,126,000	475
1925	*18,774,860	9,402,330,000	501
1926	*20,977,870	10,996,146,000	524
1927	*22,661,435	*12,542,964,000	*553
1928	*24,474,360	*13,705,636,000	*560

*Association estimate.

GAS-ELECTRIC TAXICAB

A gas-electric taxicab has been built from General Electric equipment, mounted on an automobile chassis and is now operating in Philadelphia for experimental purposes. While gasoline will still supply the power, the drive will be through the electric mechanism, which is said to allow greater flexibility and smoother starting.

SOVIET CRUDE OIL AND REFINERY OUTPUT GAINS

Production of crude oil from the principal Soviet oil fields amounted to 925,800 metric tons for the month of November as compared with 950,800 metric tons for October (a record for the industry) and 823,100 metric tons for November, 1926.

Oil production for the first 11 months of the calendar year 1927 amounted to 9,505,200 metric tons as against 7,909,200 metric tons for the corresponding period of 1926, a gain of 20 per cent. Oil production for the complete year 1926 was 8,793,700 metric tons.

The output of oil from the principal Soviet fields for 1926 and 11 months of 1927 by months in metric tons:

	1926	1927
January	637,400	830,900
February	583,400	766,300
March	644,400	861,500
April	667,100	839,700
May	728,800	909,900
June	738,300	831,000
July	760,300	864,600
August	784,800	863,300
September	748,200	861,400
October	793,300	950,800
November	823,100	925,800
December	884,500	.....

Exports of oil products from the Soviet Union for October, 1927, which is the first month of the new fiscal year, amounted to 178,342 tons, a decline as compared with the record figure of 245,809 tons for September, but a considerable increase over the exports for the same month last year.

Exports for October by products (metric tons):

Kerosene	52,370
Gasoline	37,400
Lubricating oil	10,834
Solar oil	1,706
Fuel oil	64,032
Crude oil	12,000
Total	178,342

SAFETY SEAL PENNSYLVANIA OIL

CHICAGO, Feb. 3.—The Roberts-Reitze Oil Corp., of 180 North Michigan Avenue, is operating a plan for the sale of what they term their "Safety Seal, 100 Per Cent Pure Pennsylvania" lubricating oils. They state that they have arranged with a large number of garages in Chicago and suburbs to sell this oil through their special sealed containers which make it impossible to substitute any other oil for that furnished by the source of supply. The containers are sealed and are only accessible to the representative of the company. There is no return drain pipe to the container.

As an additional precaution a test is made each week of the contents of the drum which is provided with a rotary pump for the delivery of the oil to the measure. The claim of the promoters of this method of merchandizing is that it assures the motorist an absolutely pure Pennsylvania oil.

USE OF MOTORSHIPS IS BEING EXTENDED

In a paper presented at a meeting of the Institute of Mechanical Engineers in London, England, Prof. C. H. Hawks predicted the extended use of fuel oil in marine transportation, particularly through the development of more powerful oil engines. He said: "That the motorship is today a serious competitor of the steamship is evident from the returns of Lloyd's Register of Shipping. We find that several motorships have been completed with engines designed to develop about 1,200 b.h.p. per cylinder, and the oil engine has entered the region of high powers which was formerly regarded as the province of the steam engine.

"The outstanding advantages of the steam turbine are that it can be readily designed to develop large powers, and that it has no reciprocating parts. These advantages alone make it eminently suitable for special purposes. The steam turbine is less efficient than the oil engine, but recent developments have resulted in reducing the advantage held by the latter.

"For example, the oil consumption of the geared turbines fitted in the Empress of Australia is stated to be 0.69 pound per square horsepower hour for the main and auxiliary machinery, excluding deck services. The superheated steam was supplied by cylindrical boilers at a pressure of 220 pounds per square inch, and fuel used was 'boiler oil,' having calorific value of 18,500 B.t.u. It must be admitted that this is a remarkable result."

One Million Less Cars Manufactured During Past Year

The production of cars and trucks in the United States during the past year fell short of equaling the 1926 production by nearly 1,000,000, according to figures just issued by the United States Department of Commerce. This deficit will more than likely be made up during 1928 as the Ford Motor Co. again brings up its production to a full operating basis and what effect this transition will make in gasoline consumption remains uncertain. Although more people will be supplied with cars over this year the newer cars are more efficient from the standpoint of mileage per gallon of gasoline consumed. Counteracting this factor is that of increased travel made possible by the better roads and when all factors are taken into consideration, it is very likely that as the great mass of new low-priced cars are turned on to the market, gasoline consumption will take a definite turn upward.

This year is expected to be the banner year in the number of cars and trucks produced and some estimates have been as high as 5,000,000 compared with a total of 4,298,799 in 1926, and 3,393,887 last year. The detailed production figures for cars and trucks for the last two years are given below.

1926	Cars	Trucks	Total
January	277,831	31,713	309,544
February	325,122	39,058	364,180
March	387,570	46,900	434,470
April	389,833	51,474	441,307
May	375,317	45,867	421,184
June	343,708	44,192	387,900
July	319,688	39,587	359,275
August	382,651	43,955	426,606
September	352,202	43,485	395,687
October	292,562	41,859	334,421
November	222,419	33,882	256,301
December	139,850	28,074	167,924
Total	3,908,753	490,046	4,298,799

1927	Cars	Trucks	Total
January	199,650	39,276	238,926
February	264,171	40,587	304,758
March	345,911	48,519	394,430
April	357,009	47,734	404,743
May	357,148	46,951	404,099
June	278,728	43,231	321,959
July	236,866	31,608	268,474
August	274,378	34,429	308,807
September	226,440	33,930	260,370
October	188,041	36,671	219,712
November	109,742	24,639	134,381
December	105,784	27,394	133,178
Total	2,938,868	455,019	3,393,887

"GASOLINE PEDDLING" BARRED

SHREVEPORT, La., Feb. 5.—The Louisiana Supreme Court has confirmed the Shreveport City Court's ruling declaring the city's "gasoline peddling" ordinance valid and henceforth it will be illegal to deliver gasoline from a tank wagon to an automobile stalled in the street, out of "gas." The ordinance was enacted to curb promiscuous peddling of gasoline by individuals equipped with small tank wagons on the ground that such traffic constituted a fire hazard.

NO GASOLINE SALE SUNDAY

The South Carolina State Supreme Court, in an opinion on the so-called Sunday "blue laws," holds that gasoline cannot be sold in South Carolina on Sunday, but that uncommercialized golf playing is lawful.

BUYS OIL COMPANY

CHICAGO, Feb. 3.—The National Refining Co., of Cleveland, Ohio, has bought the business of the Tubbs Oil Co., of Grand Rapids, Mich. The company operates one bulk and eight filling stations. The Tubbs Oil Co. has been the distributors of the National Refining Co.'s lubricating oils in its district.

Ask any User—

GET the facts first hand—ask any user of Oceco Equipment—what he thinks about it—how it performs—how it saves. His story should interest and profit you.

The following are a few of the users of Oceco Equipment:

Associated Oil Co.
Atlantic Refining Co.
Barber Asphalt Co.
Barnsdall Refining Co.
Beacon Oil Co.
Bedford Petroleum Co.
Buckeye Pipe Line Co.
California Petroleum Co.
Calpet Refining Co.
Canfield Oil Co.
Carter Oil Co.
Cities Service Refining Co.
Cosden Pipe Line Co.
Crew-Levick Co.
Cumberland Pipe Line Co.
Henry L. Doherty Co.
Empire Refineries, Inc.
Ford Motor Co.
General Petroleum Co.
Great Southern Refining Co.
Gulf Refining Co.
Humphreys Pure Oil Co.
Humble Oil & Refining Co.
International Petroleum Co.
Invincible Oil Co.
Kendall Refining Co.
Lago Oil & Transport Co., Ltd.
Louisiana Oil Refining Corp.
Lubrite Refining Co.
Marland Refining Co.
Mexican Petroleum Corp.
National Refining Co.
New Orleans Refining Co.
Paragon Refining Co.
Pan American Petroleum & Transport Co.
Phillips Petroleum Co.
Phoenix Oil Co., Ltd.
Pierce Petroleum Co.
Pure Oil Co.
Roumania Consolidated Oil Fields, Ltd.
Roxana Petroleum Corp.
Russian Soviet Government
Shell Oil Co.
Sinclair Refining Co.
Societa Romano Americana
Southern Pacific Co.
South Penn Oil Co.
Standard Oil Co. of Indiana
Standard Oil Co. of Kentucky
Standard Oil Co. of Louisiana
Standard Oil Co. of New Jersey
Standard Oil Co. of Ohio
Sun Oil Co.
Texas Company
Texas Pacific Coal & Oil Co.
Tidal Refining Co.
Tidewater Oil Co.
Transcontinental Oil Co.
U. S. Steel Corp.
Utah Oil Refining Co.
Vacuum Oil Co.
White Eagle Oil & Refining Co.
Argentine Government Refinery & Oil Fields

THE OIL CONSERVATION ENGINEERING COMPANY

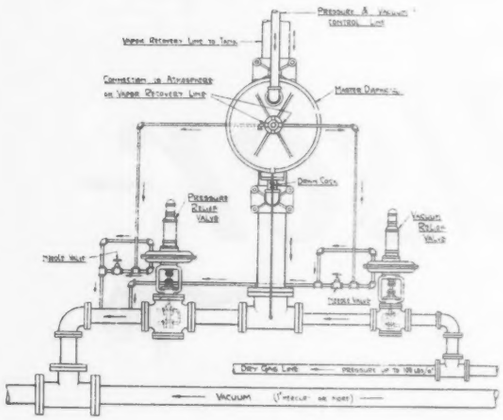
877 Addison Road Cleveland, Ohio

Engineering and Sales Service:

25 Broadway, New York
O-S Building, Casper, Wyo.
417½ So. Boulder St., Tulsa, Okla.
Box 552, Beaumont, Texas
Neilan, Schumacher & Co., Los Angeles, Cal.

NEILAN VAPOR RECOVERY SYSTEM

(Patents Pending)



Extremely Supersensitive Operates at .015 Inch Water

Tests recently conducted under the supervision of the engineers of a large oil company conclusively proved the extraordinary supersensitiveness of the Neilan Vapor Recovery Regulator System.

In eight different and individual tests, operating at pressures from .015-inch water to .3-inch water, the system operated perfectly. Control of the vapor and return-gas valves was positive and reliable.

The vapor and return-gas valves of this system operate independently of each other. They may be set for any tank pressure and vacuum. Opening and closing can be timed exactly to suit individual requirements. Any size of either valve, from 1-inch to 20 inches, or larger, can be operated with the same infallible accuracy. Even closer regulation than .015-inch water can be obtained if desired.

The sensitiveness and accuracy of this regulator system is almost unbelievable.

NEILAN, SCHUMACHER & CO.

641-651 Santa Fe Avenue, Los Angeles, Calif.

REPRESENTATIVES:

Maintenance Engineering Corp., 2000 Harrington Street, Houston, Texas

C. F. Camp Company 221 East Archer Street Tulsa, Okla.

"You Can Be Sure of Neilan Products"

THREE PRODUCING STRUCTURES DISCOVERED

(Continued from Page 142)

area proved disappointing, with a number of dry holes, but later in the year the Wilcox Pool scored again with the completion of a number of wells producing from 300 to 500 bbls. The Northern Natural Gas Development Co. inaugurated an intensive drilling campaign to provide a gas supply for the city of Great Falls, and completed a large number of very good gas wells during the summer and fall.

Modern Producing Methods

Gas lift and gas drive were tried out in the Kevin-Sunburst Field in the spring and summer of 1927, and proved successful. The Ferdig Oil Co. used gas lift on its wells and found this method of production superior to older pumping outfits. Experiments were also made with air lift. The Big West Oil Co. also experimented with gas drive, and found its production increased thereby.

Cat Creek Quiet

The Cat Creek area showed little activity in 1927. In October a 40-bbl. well was completed on the east edge of the field and aroused considerable interest in that section. Operators went back into old wells started in this area some years ago and started work again. No more wells were completed before cold weather set in, but indications point to further exploration in east Cat Creek.

The Lake Basin Field produced oil steadily throughout the year, with three new wells recorded.

Late in December a decision was handed down in the Montana courts declaring the net proceeds law void. This was an important item to producers in Montana, as the law enforced payment of a heavy tax on royalties. This law was attacked at the December meeting of the Montana branch of the Rocky Mountain Oil & Gas Association, and news of its repeal was received with great satisfaction.

In October the Montana State Land Board closed a three-year contract with the Bluebird Oil & Refining Co. for the purchase of Cat Creek royalty oil at a price of 90 cents above the posted figure for the field. At the same time a one-year contract was awarded to the Arro Oil & Refining Co., covering the royalty oil from the Kevin-Sunburst Field, at a premium of 12½ cents a barrel.

Important Wildcats Abandoned

Test wells on Conrad Butte, Black Butte, Brady Dome, Little Basin, Marias River and Gold Butte structures were abandoned during the year. Gas showings were reported from the Kremlin Dome and the Dry Creek Dome, but wells were uncompleted at the end of the year. Showings of green oil were reported from a wildcat well near Winifred.

MONTANA

Summary of Wells Completed in 1927

District—	Comp.	Prod.	Dry	Gas
Kevin-Sunburst	420	29,149	142	41
Cat Creek	5	107	2	0
Liberty County	5	0	1	4
Fallon County	10	0	3	7
Yellowstone County	4	0	4	0
Beaverhead County	1	0	1	0
Teton County	11	90	9	9
Pondera County	9	0	8	1
Toole County	5	0	5	0
Stillwater County	6	100	4	1
Fergus County	2	0	2	0
Glacier County	1	0	1	0
Musselshell County	2	0	2	0
Cascade County	3	0	3	0
Judith Basin County	1	0	1	0
Little Muddy	1	0	1	0
Valley County	1	0	1	0
Phillips County	1	0	1	0
Petroleum County	3	0	3	0
Blaine County	1	0	1	0
Carbon County	1	0	1	0
Total 1927	493	29,446	196	54
Total 1926	450	52,595	155	29
Difference	43	*23,149	41	25

*Difference.

Completions by Months

Months—	Comp.	Prod.	Dry	Gas
January	31	2,126	10	2
February	14	192	6	1
March	12	848	4	0
April	29	4,494	10	2
May	26	1,650	8	0
June	46	2,528	19	3
July	62	4,383	27	5
August	74	5,516	18	11
September	75	1,208	30	16
October	60	2,190	30	5
November	49	4,261	25	6
December	15	50	9	3
Total	493	29,446	196	54

SCOPE OF S.A.E. VISCOSITY NUMBERS

Continued from Page 266)

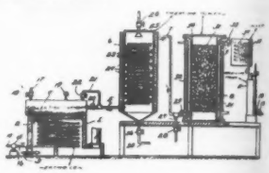
several others that they will use them in the next issue of their books.

Several oil companies are stamping their containers with the numbers and have issued lubrication charts incorporating them together with their own lettered grading. I don't believe I am violating a confidence in stating that one of the largest, if not the largest, oil distributing company, has made definite plans for their adoption. Several others are contemplating their use and have given assurance of their approval.

What is needed is more publicity. Retail oil station operators must be instructed so that when Tom Jones wants a quart of S.A.E. 30 oil he can get it as readily as if he asked for a quart of heavy, and in addition, by this system he should be able to obtain oil of the desired viscosity. If he believes that a certain company's trade-marked oil is superior, he should be able to obtain the desired viscosity of this particular brand.

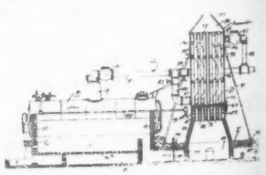
Recent Patents

1,654,581. Process of Desulphurizing and Purifying Petroleum Oil. Roy Cross, Kansas City, Mo. Filed November 21, 1923. Serial No. 676,028. 2 Claims. (Cl. 196—33.)



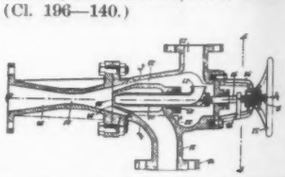
1. A process for refining, desulphurizing and purifying hydrocarbon distillate consisting in bringing the oil in intimate contact with a sodium plumbite solution at temperatures in excess of 200 degrees Fahrenheit by counterflowing the oil with the treating solution and maintaining sufficient pressure upon the treating stage to prevent substantial vaporization of the liquid materials.

1,654,580. Expansion Process and Apparatus for Refining of Hydrocarbons. Russell K. Collins, Fort Worth, Tex. Filed July 28, 1926. Serial No. 125,502. 9 Claims. (Cl. 196—61.)



1. That process of refining hydrocarbons in the vapor phase which consists in feeding the hydrocarbon in its vapor phase vertically through a space pierced by a plurality of heat-radiating zones which heat the vapor to substantially the same intensity so that each thermo-chemically effective vapor conversion zone substantially abuts in unobstructed and nonoverlapping relation with the outer portions of the like adjacent heating zones.

1,655,053. Method and Apparatus for Continuously Condensing Oil-Cracking Still Vapors. Richard Fleming, Westfield, N. J. Filed November 19, 1920, Serial No. 425,044, and in Great Britain, November 26, 1919. 9 Claims. (Cl. 196—140.)



3. The method of condensing pressure cracked still vapors, which consists in

The LARKIN

Improved SAND PUMP

designed for the toughest jobs

The LARKIN Improved Sand Pump is flexible. It will operate successfully at all depths—under all conditions. Under ordinary conditions it will, when equipped with its Regular Bottom, bring out the sand and sediment in record time.

And for that tough job—where cavings have packed hard, the Larkin BIT Bottom may be used. It will break up the hard formations efficiently, and so quickly pass the material through to the pump, that the pump may be operated at full capacity without being delayed to any extent. To be prepared to meet the toughest pumping jobs, get the Larkin and have it equipped with BOTH the REGULAR and BIT Bottoms.

The Larkin will clean out more wells, for more years, than any sand pump made. Its barrel is of "NATIONAL" Seamless Steel Tubing. In every detail of construction, the materials used are unexcelled for quality. The bottoms are made of an excellent grade of steel and the Clapper Valve is provided with specially cured leather which gives very long service.

With the Larkin Pump and both of its bottoms, the driller has the best equipment there is for sand pumping—no matter how tough the job.

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LARKIN & CO.

Manufactured only at

BUTLER, PA.

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REGULAR BOTTOM

In the Larkin Regular Bottom, the legs are short, allowing the pump to rest as near the bottom of the hole as possible and still obtain the necessary suction to remove the greatest amount of sand and sediment quickly.

BIT BOTTOM

This bottom is used for drilling and breaking the sand loose. Its chisel shape design is unique, prevents sticking, and allows successful operation in tightly packed sands.

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If the NO-CO-RO Drop & Seat *doesn't* give you twice the service of the best ball and seat you have ever used, we will refund the purchase price. If it *does* give you twice the service, you effect a permanent and substantial saving in pulling costs.

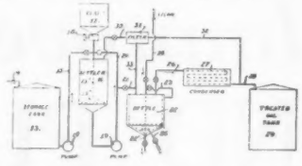
In either case you are ahead. We can think of no fairer way of suggesting a trial of the NO-CO-RO Drop and Seat; and realizing some of the savings that users have reported to us—eight months' service in a well once pulled every week, to cite one example—we know of no improvement you can make that will return such rich rewards.

NORRIS BROTHERS, *Inc.*

ROBINSON, ILLINOIS FORT WORTH, TEXAS

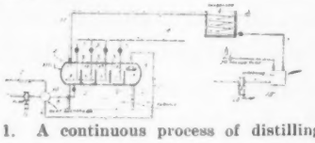
discharging the vapors in a jet in contact with water interiorly and exteriorly of the jet.

1,655,890. Treating Oils. Arthur F. L. Bell, San Francisco, Calif., assignor to Associated Oil Co., San Francisco, Calif., a corporation of California. Filed August 11, 1924. Serial No. 731,302. 3 Claims. (Cl. 196—46.)



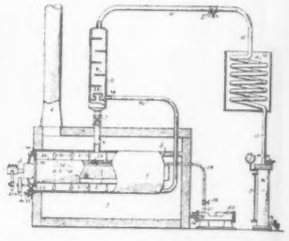
1. An apparatus for treating oils including a receptacle for the oil, a separate receptacle for the treating agent, a settler, means within the settler to prevent agitation, means for delivering the oil and treating agent from their respective receptacles to the settler, means for withdrawing the oil from the top of the settler, means for withdrawing the treating agent from the bottom of the settler, an evaporating kettle, means for delivering the withdrawn treating agent, at will, to said settler or to said evaporating kettle, means for withdrawing the evaporated product from the kettle, and means for withdrawing the unevaporated product from the kettle.

1,655,603. Process of Distilling Petroleum Oil. Richard Wright Hanna, Piedmont, Calif., assignor, by mesne assignments, to Standard Oil Co. of California, San Francisco, Calif., a corporation of Delaware. Filed March 31, 1923. Serial No. 629,053. 3 Claims. (Cl. 196—77.)



1. A continuous process of distilling petroleum oil to evolve heavy lubricating oil fractions therefrom having a decomposing temperature below their vaporizing temperature when heated under a substantial vacuum and substantially preventing decomposition of such heavy lubricating oil fractions, comprising feeding into a single distilling zone oil containing such heavy lubricating oil fractions and lighter lubricating oil factors, maintaining the distilling zone at substantially a constant temperature below the decomposing temperature of said heavy fractions and under a reduced pressure to vaporize said heavy fractions in the pressure of the vapors of said lighter fractions, and continuously withdrawing said resulting mixed vapors and residue from the distilling zone in such relation of volume and speed as to cause the vaporization of both said heavy and light lubricating oil fractions.

1,655,600. Apparatus for Treating Hydrocarbons. Gustav Egloff and Harry P. Benner, Independence, Kans., assignors to Universal Oil Products Co., Chicago, Ill., a corporation of South Dakota. Filed June 28, 1920, Serial No. 392,478. Renewed Mar. 12, 1928. 8 Claims. (Cl. 196—12.)



5. In an apparatus for treating oil, the combination with a centrally disposed heating member from which heating gases pass, of an annular still section rotatably mounted around said central heating member, and an outer stationary section surrounding said rotatable section and providing a space there between for the reception of hydrocarbon oil.

GULF COAST WATER SHIPMENTS; DECEMBER-NOVEMBER COMPARED

HOUSTON, Tex., Feb. 4.—A total of 17,438,091.41 bbls. of crude and refined products were shipped out of Gulf Coast ports during December, according to figures just compiled here. This represented an increase of 1,107,864.26 bbls. over shipments of November.

Of the total shipped during December, 9,405,864.99 bbls. were refined products and 8,032,226.42 bbls. crude. Export movements of both refined products and crude totaled 1,833,545.87 bbls. as against 15,654,545.54 bbls. moved coastwise.

While figures are not available, export movements of refined products during January are expected to reflect a greater increase due to the improved export demand for Gulf Coast lubricating oils. The market on neutrals the past two weeks has advanced generally a half cent on all grades with a steady run of cargoes leaving Gulf refineries.

Shipments during December were:

GULF COASTAL WATER SHIPMENTS, DECEMBER COMPARED WITH NOVEMBER

(All figures in barrels of 42 gallons.)

Company and Port—	Coastwise Refined— November	Coastwise Refined— December	Export Refined— November	Export Refined— December
Standard of Louisiana, Baton Rouge	785,717.00	482,198.00	766,940.00	626,111.00
The Texas Company, Port Arthur	1,140,006.00	1,202,013.00	317,814.00	266,338.00
Gulf Refining Co., Port Arthur	2,428,914.10	2,616,676.20	157,356.66	191,336.79
Magnolia Petroleum Co., Beaumont	654,228.33	*1,000,638.30	.....	.....
Sinclair Refining Co., Houston	303,164.45	278,076.33	149,401.99	12,574.31
Humble Oil & Refining Co., Baytown	1,580,268.51	1,734,121.63	1,099,575.23	436,197.22
Marland Oil Co., Texas City	.....	†	.....	.....
Atlantic Oil Producing Co., Atreco	177,216.64	136,563.39	.....	.....
Galena Signal Oil Co., Houston	.....	.....	55,000.00	.....
Deepwater Oil Refineries, Houston	.....	.....	.....	.....
Pure Oil Co., Smith's Bluff	255,233.41	276,101.27	13,644.14	46,868.0
Total	7,324,749.44	7,826,388.12	2,619,532.02	1,579,476.3

Company and Port—	Coastwise Crude— November	Coastwise Crude— December	Export Crude— November	Export Crude— December
Standard of Louisiana, Baton Rouge	406,645.00	770,799.00	52,854.00	53,202.00
The Texas Company, Port Arthur	.....	.....	.....	36,128.00
Gulf Refining Co., Port Arthur	78,857.13	.....	.....	.....
Magnolia Petroleum Co., Beaumont	709,781.24	*767,813.00	.....	.....
Sinclair Refining Co., Houston	439,716.60	283,807.63	.....	.....
Humble Oil & Refining Co.:				
Texas City	1,211,563.00	1,060,417.00	.....	.....
Baytown	794,617.00	880,261.00	.....	39,052.00
Ingleside	1,410,842.00	1,537,245.00	.....	75,656.00
Neches Terminal	60,054.000	132,811.00	.....	.....
Atlantic Oil Producing Co.:				
Atreco	286,299.61	350,695.00	.....	.....
Beaumont	457,483.34	380,107.07	.....	.....
Smith's Bluff	.....	49,604.81	.....	.....
Pasadena	.....	57,013.48	.....	.....
Swiftsure Petroleum Co., Texas City	85,055.00	156,895.91	.....	.....
Pure Oil Co., Smith's Bluff	341,177.00	453,363.52	.....	.....
Sun Oil Co., Sabine Pass	.....	734,324.00	.....	.....
Crown Central Petroleum Corp., Houston	80,000.00	213,000.00	.....	.....
Total	6,362,091.69	7,828,157.42	52,854.00	204,069.00

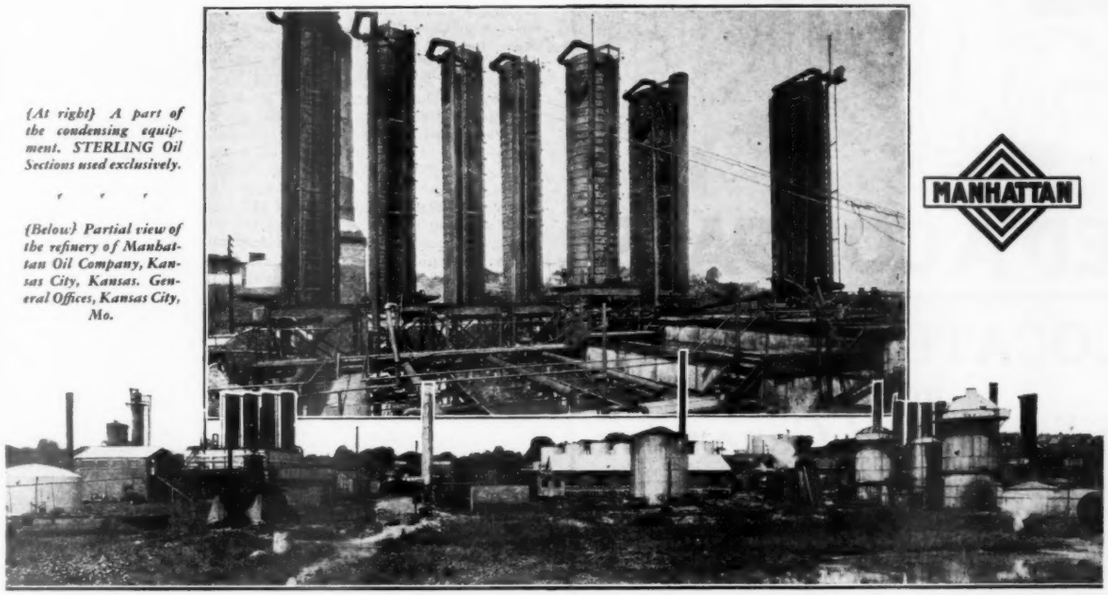
*Magnolia Petroleum Co. makes no distinction in reports between coastwise and export shipments. †No report.

Manhattan Oil Company Condensing Units
100% STERLING Oil Sections

(At right) A part of the condensing equipment. STERLING Oil Sections used exclusively.

* * *

(Below) Partial view of the refinery of Manhattan Oil Company, Kansas City, Kansas. General Offices, Kansas City, Mo.



MANHATTAN

Is it economy or efficiency to use old-style condensing surface, until the metal wears out, when you can materially increase gasoline production with STERLING Sections and have one-half your condenser box space available for future expansion?

The Manhattan Oil Company is another proof that it is profitable to install modern, efficient condensing equipment regardless of the condition of the obsolete material.

Andrew Carnegie, years ago, established a sound precedent by scrapping new machinery which cost a fortune—because improved equipment pays for both itself and the discarded units.

STERLING Sections require but half the box space necessary for old-style condensing surface, and every connection is instantly accessible. Replacements are made in a small fraction of the time formerly required.

More rapid condensing and more effective cooling is the experience of every STERLING equipped operator.

Although cast in ARCO Corrosion Resisting Metal, and finished with the famous precision Ground Metal Joint, STERLING Oil Sections cost less (installed) than old-style surfaces installed.

STERLING revised Catalog for engineers is now ready—it is sent free on request. Complete construction data and illustrations. Our district representatives are glad to co-operate with you by submitting estimates, lay-outs, etc., without the least obligation on your part.

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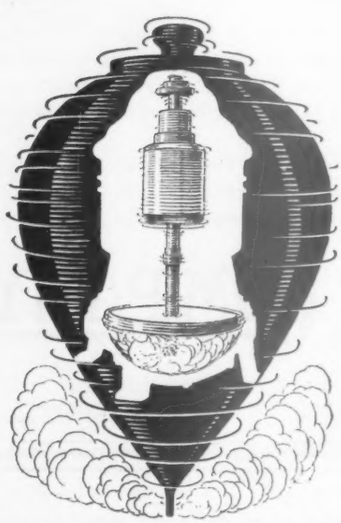

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R-F Electrical Manufacturing Company
AUGUSTA - - - - - - - - - KANSAS

NEW PRODUCTION IN THE ROCKY MOUNTAINS

(Continued from Page 148)

bbl. well at 1,640 feet. This is a black oil pool where production is shut in for lack of a market. The Ohio Oil Co. and the Midwest Refining Co. also have production in this area, the latter having taken over during the year the Carter Oil Co.'s holdings. There were several gas wells completed in the Big Sand Draw, but no oil discoveries were made.

The old Warm Springs Pool, in Hot Springs County, was again opened for production by the new owners, the C. B. Shaffer interests, and the oil, a heavy black crude, is being refined at Thermopolis, Wyo., where J. H. Walden purchased and reconditioned the old Alliance refinery. The Utah Oil Refining Co. has several producers on the Black Mountain structure, but had a failure in its No. 1 Fort Collins, Section 26-43-91, a test to the Amsden at 3,833 feet. The Union of California abandoned a test in its No. 1 Burnham, NW, Section 28-43-91, at 2,717 feet, and the Carter Oil Co. had a failure on the Nowood Dome, in a test on the NE SW, Section 5-48-90, finding warm sulphur water in the Embar and Tensleep and abandoning it at 1,912 feet.

In Johnson County, the Carter Oil Co. again attempted a test to the horizons below the Frontier gas sand on the Billy Creek structure in its No. 2 Rider, NW SE, Section 17-48-82, but was unable to sidetrack tools at 4,398 feet, and plugged it back and completed it as a 70,000,000-foot gas well. Operations were then suspended until spring.

WYOMING
Summary of Completed Wells in 1927

District—	Comp.	Prod.	Dry	Gas
Big Muddy and Converse Counties	14	963	1	0
Salt Creek	196	123,339	9	0
Niobrara County	2	395	0	0
Crook County	1	0	1	0
Big Horn Basin	26	1,107	14	4
Carbon and Sweetwater Counties	29	3,424	10	7
Fremont County	19	1,855	7	4
Osage and Weston Counties	9	100	2	3
Natrona County	1	180	0	0
Lincoln, Sublet and Uinta Counties	39	2,441	6	1
Laramie County	1	0	1	0
Campbell County	1	0	1	0
Total, 1927	339	133,804	52	19
Total, 1926	493	96,043	78	17
Difference	54	37,761	26	2

Completions by Months

Month—	Comp.	Prod.	Dry	Gas
January	26	4,382	3	1
February	17	11,416	2	2
March	45	25,066	8	0
April	31	18,978	7	1
May	32	45,142	3	1
June	22	6,647	2	0
July	37	7,974	3	1
August	35	5,071	7	6
September	35	3,253	3	7
October	26	2,318	2	0
November	16	3,040	6	0
December	17	517	6	0
Total	339	133,804	52	19

Colorado

Drilling operations in Colorado in 1927 resulted in the discovery of two new producing horizons in the Morrison and Sundance formations below the Dakota, from which all sand production has come in the past, on the Iles and Moffat Domes, both in Moffat County, in the northwestern part of the State, and the opening up of an extension of the old Florence Pool in Fremont County several miles west of the former producing limits. The productive area in the Dakota was defined by drilling on the Moffat Dome, and a good producer was opened up a mile north of the nearest well on the Tow Creek Dome in Routt County. Seven structural tests drilled by major companies on good geological advice proved to be failures, as were also several wildcats put down by smaller companies under less favorable conditions. The outcome of several important structural tests was still in doubt at the close of the year.

There were 140 wells completed in the State in 1927. This number is slightly in excess of the number reported in the regular drilling summaries due to the inclusion of some shallow drilling in areas not regularly scouted. Of these, 56 were producers, 7 were gas wells, and 77 were abandoned. This shows a gain over 1926 when there were 97 completions, of which 37 were producers, 7 were gas wells, and 53 were abandoned. The number of uncompleted operations at the end of the year was practically the same as at the end of 1926. The aggregate depth of all completed wells in 1927 was 350,992 feet, or an average per well of 2,507 feet, compared with 314,289 feet, or an average of 3,240 feet per well in 1926. The decrease in average depth was due to the drilling of a larger number of shallow wells in Fremont County.

Most Important Discovery

The most important discovery of the year was on the Iles Dome, in Moffat County. This structure lies in Township 4n, Range 92w. Previous to 1927, tests had been drilled on top of the dome, on the flanks, and near fault lines and had proven to be failures in the Dakota sands though there were several small pumpers from shale above the Dakota. The Midwest Refining Co. drilled a deep test to horizons below the Dakota early in the year in its No. 21-SD Parkinson, NE SW SE, Section 22-4-92. A sand in the Morrison was topped at 3,057 feet, which made 3,000,000 feet of gas and no water. Another sand was topped in April at 3,195 feet making 15,000,000 feet of gas. At 3,228 feet, it cut a hard shell and then went back into sand. At 3,242 feet, oil commenced coming into the hole from the Sundance. It flowed 86 bbls. an hour through a crack in the valve and a 2-inch line, the oil testing 31.8 gravity, and showing a back pressure of 360 pounds while flowing. On April 17, it was gauged and made 2,575 bbls. in 24 hours with 242 pounds back pressure. The temperature of the oil at the well head was 71 degrees Fahrenheit, and the oil flowed at zero. The first refinery test made on one barrel showed 12 per cent gasoline content, but subsequent tests showed better results. The well was then beaned down to 450 bbls. a day where it showed a pressure of 612 pounds.

It was feared that this well might be a freak, producing through a fissure, but subsequent developments proved that it was a true structural sand well. The Midwest's No. 18-SD NW SW Section 23-4-92, topped the first Morrison sand at 3,174 feet, making 5,000,000 feet of gas, and building up a pressure of 1,205 pounds in 60 minutes. It topped the Sundance at 3,342 feet and 2 feet in, flowed 400 bbls. Drilling was suspended at 3,362 feet, and from 20 feet of Sundance sand, averaged 306 bbls. a day in the first week's test. In the meantime, the Texas Production Co.'s No. 5 Parkinson, NW NW Section 23-4-92, found production in the Morrison, flowing 250 bbls. initial from the first Morrison sand at 3,284-88 feet. The 6¼-inch casing was run with a perforated joint and the test was drilled to a second sand in the Morrison at 3,314-25 feet. It made 648 bbls. in the first full 24-hour test. It was completed as a Morrison sand well without going to the Sundance. Same company's No. 17 Parkinson, NW SW Section 23-4-92, commenced showing oil in the Morrison at 3,316 feet, and had 2,000 feet in the hole at 3,450 feet. It flowed by heads upon entering a second Morrison sand at 3,485 feet, and topped the Sundance at 3,500 feet. The 4½-inch casing was run and the well flowed 598 bbls. first 24 hours from the Morrison from between casings and had 2,750 feet of oil from the Sundance standing in the smaller string. It has not yet been completed. Midwest Refining Co.'s No. 34-SD Parkinson, SW SE SW Section 22-4-92, made 11,000,000 feet of gas from the Morrison sand at 3,052-70 feet, but has not yet reached the Sundance. Same company's No. 4-SD Shaw, NW NE Section 27-4-92, had 15,000,000 feet of gas in the first Morrison at 3,236-76 feet, and cut a shell at 3,276 feet, letting the oil in. It flowed 662 bbls. in 13 hours, and was then beaned down to a five-eighths-inch choke, making 131 bbls. in 3 hours with a back pressure of 620 pounds and line pressure of 210 pounds. After conditioning, but with the 8¼-inch bit at the bottom, it made 1,010 bbls. in 24 hours, while beaned down, and after being deepened 6 feet, flowed 1,400 bbls. in 24

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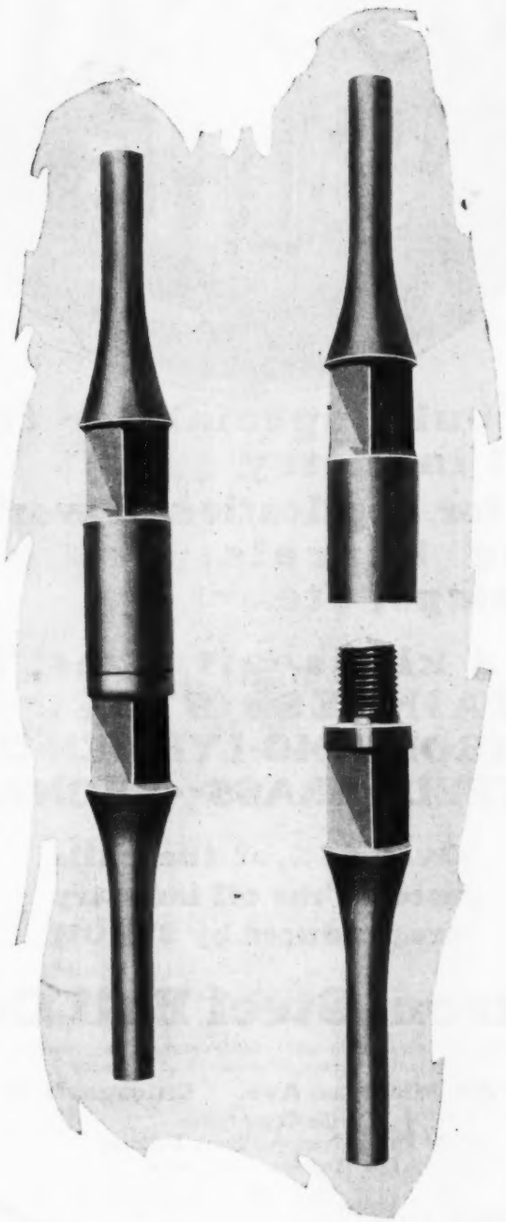

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These operations not only established the Iles Pool, but disclosed that the Morrison and Sundance horizons below the Dakota, the objective of most previous drilling, held attractive possibilities in other areas. Limits of the pool have not yet been determined, but it is estimated that between 600 and 800 acres so far have been proven. Nine operations now are under way.

The Moffat Dome

The Moffat Dome, one township to the northeast of the Iles Dome, which produced 589,440 bbls. in 1925, and 1,167,184 bbls. in 1926, all coming from the Dakota sand, declined from around 2,800 bbls. a day early in January of 1927 to around 1,200 bbls. a day at the end of the year. This was due to natural decrease without any new production in the Dakota being brought in. Five wells were drilled to the Dakota early in the year and all found water. Four were abandoned and one, No. 10 Basil Knowlton, Section 33-5n-91, was saved for a deep test to the horizons found productive at Iles. These wells defined the limits of the pool in the Dakota, showing that less than 100 acres could be considered productive. No. 10 Knowlton, drilled by the Texas Production Co., and a joint operation with the Transcontinental Oil Co., was drilled down and topped a sand in the Morrison at 4,226 feet, which made 5,000,000 feet of gas. It was deepened 1 foot and oil came in. A test was made at 4,265 feet and it gauged 178 bbls. of 37.3 gravity oil at 4,265 feet. Additional oil was found in the second Morrison, the total being close to 400 bbls., and the Sundance was topped at 4,400 feet. At 4,426 feet, it had 2,000 feet of fluid in the hole, of which part was water. Bailing exhausted the water, but did not exhaust the oil. The sand was very hard and a pumping test was made, the well producing 85 bbls. in the first 12 hours. In as much as this is the only test drilled to the new horizons, it can not yet be predicted what the results as far as the pool is concerned will be, though present indications are that considerable life will be added to the pool with the possibility that the productive area will be larger than in the Dakota.

Thornburg Dome

The Thornburg Dome, which has several gas wells in the Dakota, was tested to the Sundance by the Marland Oil Co. in its No. 1 Clark, SW NW Section 21-3n-91, a joint operation with the Prairie Oil & Gas Co. It had a show of oil and water in the Sundance topped at 2,640 feet, and was drilled into the red beds to a total depth of 3,095 feet. It was then plugged back to the Dakota and completed at 2,020 feet as a gas well with an open flow of 45,000,000 feet. While shows of oil were encountered in the Dakota on this structure, so far it is classed as a gas dome. Additional testing on the theory that it is broken up into fault blocks probably will take place.

Hiawatha Structure

On the Hiawatha Structure, in the northern part of Moffat County, on the Wyoming boundary, only one well was drilled to the sand, this being the Ohio Oil Co.'s No. 1 Kuykendall, NE NE Section 22-12n-100, which was shut in at 2,008 feet, supposedly in the Wasatch formation of the Tertiary Age, as a gas well, untested, but estimated at 35,000,000 feet with 600 pounds pressure. The well is on the same section as the Somir Petroleum Co.'s No. 1 Wilson, SW NE Section 22-12-100, which was completed at 2,035 feet in 1926 as a 57,000,000-foot gas well and shut in. The gas is under option to the Hope Engineering & Supply Co. for a projected pipe line to Salt Lake City. The Reiter-Foster Oil Co. has a test on SE SE Section 16-12-100, close to the sand and the Ohio and Somir companies are each drilling a test on the Wyoming side.

In Rio Blanco County, the Rangely Dome, which showed two big gas wells in the Dakota in the preceding year, was further tested, but with unsatisfactory results. The Tidewater Associated Oil Co. drilled with a rotary to 4,800 feet in its No. 1 Amazon, on the Gray permit, SE SE Section 24-2n-103, where operations were suspended on account of a bad hole. The Dakota at 3,400 feet had neither, oil, gas or water. An uncommercial saturated sand in the Morrison was found at 3,717-57 feet, and water was found in the Sundance. The Midwest Refining Co.'s No. 2 Rangely, SE SE Section 30-2n-102, offset to its big gas well in the Dakota, had gas in the Dakota, but has not yet reached the Sundance. The Texas Production Co.'s No. 2 Emerald, NW NW Section 31-2n-102, had gas in the first Dakota, water in the second, and 12,000,000 feet of gas in the first Morrison at 3,550-64 feet, with a back pressure of 1,300 pounds, built up in 30 minutes. Water was found in the Sundance sand, topped at 3,926 feet, and the well will be plugged back and completed as a gasser. This well had shows that may be commercial in shale above the Dakota. This pool is steadily producing from shale wells at a shallow depth and the crude is being refined on the ground.

Developing Fremont County

In Fremont County, a small well making 5 bbls. a day located about 6 miles west of Florence and east of Canon City, was completed at a shallow depth late in 1926. Early in 1927 an extensive drilling campaign was inaugurated and more than 50 wells were drilled in what became known as the western extension of the Florence Pool. The first of the series was the Continental Oil Co.'s No. 578, NE SW Section 35-18-70, which made 10 bbls. at 1,125 feet. Later in the year it was deepened to 1,305 feet, and production was increased to 200 bbls. initial. The oil comes from the shale in about the same quantities as in the old field and in the south extension, and is 30 gravity. Sand tests were failures. Drilling is not expensive as the shale holds up well and requires only the producing string of casing. The pay is found at varying depths and in varying quantities, the area being extremely spotted and the oil apparently being a seepage. Some of the wells have averaged 200 bbls. a day over a period of several weeks, but as a rule, they are small producers and all of them have to be pumped. The principal producers in the west extension are in Section 35-18-70 and Sections 2 and 3-19-70. The Continental Oil Co. is the principal operating concern and purchases the oil of a number of small companies. Production is run as part of the Florence Pool, and included with the south extention which had some good completions during the year, but opened no new territory. The Florence Pool increased average daily production from around 400 bbls. at the beginning of the year to 1,000 bbls. a day and is holding at around 900 bbls. at the end of the year.

This field, second oldest in the country, has produced 13,000,000 bbls. from the shale, every barrel of which had to be pumped. The source of the oil has never been discovered. The oil is refined in the Continental Oil Co.'s refinery at Florence.

Wellington-Fort Collins

The Wellington-Fort Collins operation in Larimer County, where the Union Oil Co. of California is the sole operator, slowed down considerably during the year on account of the low price of crude oil, but maintained production at a fairly even rate throughout the year. During the first three months of the year the company completed six wells on the Wellington Dome and three on the Fort Collins structure, all of which were in proven territory. These were operations commenced in the previous year and wound up its drilling campaign for the time being except for one string of tools which was kept at work on the Union Pacific railroad lease on the Wellington Dome. One well was completed in June and at the end of the year another on the same lease had reached the sand but had not been finished. None of these wells proved up any additional territory and the status of the operation showed little change until late in the fall when

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three wells were started on the Wellington, and two on the Fort Collins Domes.

Use the Gas Lift

Early in the year the company commenced using the gas lift method for producing the oil, taking the gas from the producing oil wells through a plant to recover the gasoline content, and then piping it back into the wells. The result was that the production was maintained at between 3,000 and 4,000 bbls. a day for both structures for the entire year. The only variation of any consequence was early in the year when flush production from new wells came in. The oil is sold to the Midwest Refining Co. at Mid-Continent prices. It is apparent that if the company desired to increase the output of the field, it could do so materially, but since it does not need the oil for its own refineries, having none in this territory, its policy has been to conserve the oil in the ground as much as possible. The company sells around 5,000,000 feet of gas per day, including that used in its own operations, the principal customers being subsidiaries of the Cities Service Co., supplying natural gas to Fort Collins, Cheyenne, and to several industries.

The production on the two structures comes from the Muddy sand in the Dakota at around 4,500 feet. Two water wells, one on the north and the other on the south structures, are being drilled down to test the lower horizons. Extended pumping tests on two of the water wells on the Wellington Dome has resulted in bringing in oil. One of these proved to be one of the best producers in the field, but every time it has to shut down to make repairs, it goes back to water. Two gas wells on the Wellington Dome are shut in except for about 1,250,000 feet a day taken from the discovery well.

Tow Creek Dome

The Tow Creek Dome, in Routt County, will show a total production for 1927 of more than 125,000 bbls., all of which came from the shale. The Texas Production Co. is the operator with the exception of one other company drilling its first well. The discovery well, No. 1 Henry Dennis, NE NE Section 18-6-86, was completed in the shale at 2,597 feet in June, 1926, with an initial production of 343 bbls., and increased until it became a flowing well, making as high as 1,005 bbls. in a day. Up to November 30, 1926, it had produced 90,472 bbls., an average of 729 bbls. a day for 124 days. It is still a producer, a remarkable record for a shale well where water has been found in the underlying sand. In 1927, the Texas Production Co. completed 12 wells in the pool, of which 5 were abandoned and 7 were producers. There were three wells drilling at the end of the year, or preparing to resume after a shutdown. The most northerly of these wells is No. 1 Irwin-Carstarphen, SE NW Section 5-6n-86, which swabbed 369 bbls. initial from the Mancos shale above the Dakota from a total depth of 3,285 feet, located a mile ahead of the nearest producer. The oil tests 27.4 gravity, or a different grade found farther to the south, indicating that it is separated from the other wells by a fault. No. 1 Wilbur Rule, SW NE Section 5-6n-86, a quarter of a mile from the Irwin-Carstarphen well, missed the pay found at 3,285 feet in the other well, but at 4,300 feet has considerable oil in the hole and looks as if it will be a good producer. Several tests to the Dakota found water in that horizon. No. 4 Adair, SE SE Section 7-6-86, had water in the Dakota at 3,523 feet, and was abandoned. No. 2 Edwards, SE SW Section 8-6-86, was abandoned on top of the Frontier at 3,940 feet. No. 1 Thompson, SE SE Section 5-6-86, and No. 1 McNeill, SE SW Section 5-6-86, were abandoned at 3,408 and 3,000 feet, these two wells apparently isolating the Irwin-Carstarphen No. 1 from the other producing area and further confirming the opinion that the two areas are independent of each other. No. 3 Belle Dennis, NE NW Section 8-6n-86, was abandoned at 3,693 feet. This well was intended to be a test to the Sundance, but the log showed that the horizon would be too deep in this well. The producing wells extend as far south as the north tier of forties in Section 18-6n-86, No. 3 Henry Dennis, SE NE NE, Section 18 swabbing 250 bbls. initial from a total depth of 2,685 feet. The operation is a little unusual, and like most shale pools, it is hard to outline the production limits, the oil being where it is found. The pool averaged around 450 bbls. a day for the first few weeks of the year and was practically the same at the close of the year, but in July and August, when there was considerable flush production, made an average of around 1,000 bbls.

Three Tests on Paradox Structure

The General Petroleum Corp. completed three tests on the Paradox Structure in Montrose County. No. 1 Wilcox C S half Section 35-48-19, was abandoned at 3,548 feet in black shale. It had a show of gas and 54 gravity oil at 1,717 feet, bailing several barrels, a gas pocket at 2,284 feet which bailed 4 bbls. of oil, and one or two other slight shows. No. 2 Wilcox, NE SW Section 6-47-19, was abandoned at 6,300 feet in salt. It cut 5,000 feet of salt, 1,300 feet of conglomerate, black shale, lime and gypsum. It had several shows of oil and gas. No. 1 Mullen, NE SW Section 4-46-17, was abandoned at 4,170 feet after going through 2,400 feet of salt with several shows of gas and oil. The company has retained its equipment in the field and may drill another well to test out the theory that this is a true salt dome which may yield production on the flanks, or await the outcome of a flank dome test in the same general region in Utah.

Several Tests in Boulder

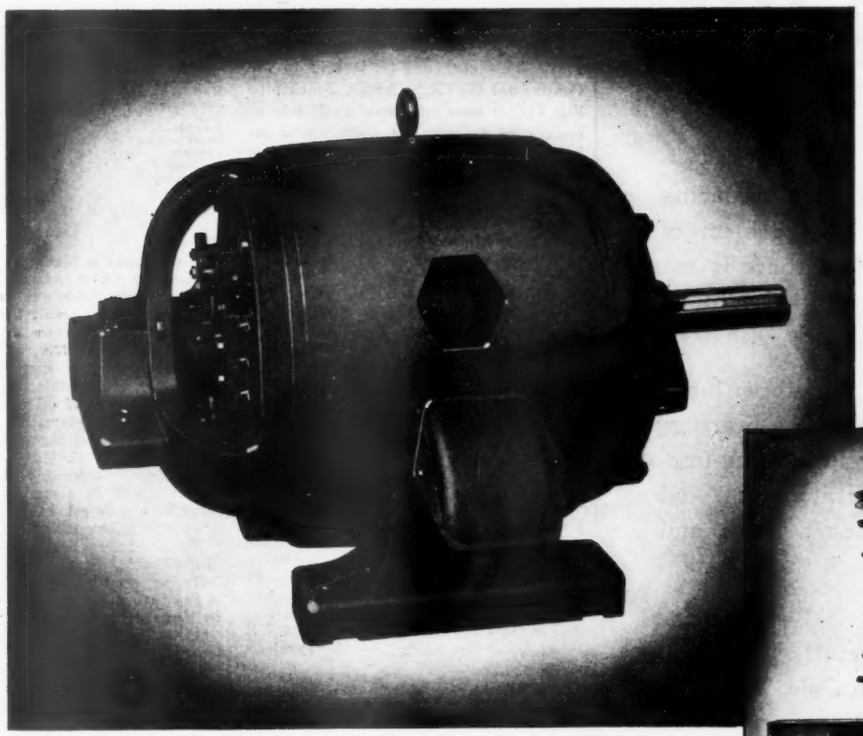
Boulder County had several tests drilled but opened no new production. The principal operation was on the Parallel Dome where the Repollo Oil Co.'s No. 1 Deines, NE NW Section 33-1n-70, was lost at 4,730 feet without reaching the objective Dakota. It showed for 3 bbls. in the Hygiene at 3,400 feet and had a little gas at the bottom when drilling was suspended. Two other tests on this structure are drilling and are due to reach the objective early in 1928. The Left Hand Oil Co.'s No. 1 Prechtl, NW SW Section 34-3n-70, on the Left Hand structure, had a show for a commercial producer from the Muddy sand in the Dakota at 1,998 feet, but no test has yet been made due to difficulties in shutting off upper water. There is a chance of making this dome into a producing pool. Frank E. Kistler & Co. drilled a test to 4,410 feet on the Longmont Dome in its No. 1 Gillespie, NW SE Section 28-2n-69. The Hygiene was dry and the Dakota was considered too deep for testing and the hole was abandoned. The Boulder Drilling Co. put down a test in the old Boulder Field in its No. 1 Nelson, Section 9-1n-70, which was abandoned at 2,600 feet, and a test drilled by the Boulder Co. on the Eberhart farm five miles east of Boulder was abandoned below 5,200 feet.

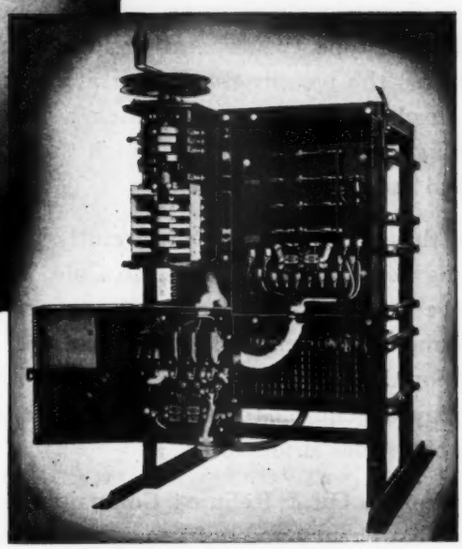
Work in Pueblo County

Pueblo County had three tests under way during the year. C. E. Puckett and others' drilled No. 2 Baxter, Section 30-20s-63, just east of Pueblo, to 3,362 feet where it was abandoned. It went through the Dakota and into the Morrison, having a show of oil and gas at 2,905 feet in lime, and water in the Dakota at 1,780 feet. It was 2,000 feet from No. 1 Baxter which had encouraging shows when drilled two years ago. Charles Kapschull and others' drilled a test on Section 25-24s-61, on the Yellow Banks Dome, which was abandoned at 1,060 feet after going into the Lakota sand of the Dakota series, the horizon being dry. The Boone Oil & Gas Co. is making a test on Section 33-18s-60, and encountered stagnant salt water at 2,950 feet, but will be deepened.

Miscellaneous Tests

Southeastern Colorado, including Baca, Bent, Las Animas and Otero Counties, attracted considerable attention and several of the major companies blocked up large tracts, but no conclusive testing was done. In Las Animas County, several gas wells were completed at around 1,700 feet on the Garcia structure in Section 4-34s-62, and adjoining sections





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by the Mountain States Gasoline Corp. and the Great Dome Oil & Gas Co. The wells come in for 50,000 to 250,000 feet each. The gas yields better than 4 quarts of gasoline per 1,000 feet in an absorption plant which the Mountain States company put into operation during the year. This gas gasoline is sold to the Continental Oil Co., a 5-mile, 2-inch pipe line having been completed to Barela at the end of the year. A deep test to the Morrison is planned for 1928. The Parker Club is making a test near Branson in its No. 1 Adams, Section 32-34-56, which had reached a depth of 3,800 feet at the end of the year. It proved the Pennsylvania formation was in place in that area and that a number of thin sands were to be found, but so far it has not developed any commercial production. It is still drilling and the operator is hopeful of results in the major sand which has not yet been cut. At the end of the year the Phillips Petroleum Co., joint with the Reiter-Foster Oil Co. and the Texas Production Co., was starting a Pennsylvania test on the Red Rocks structure, in its No. 1 Haskins, Section 23-29s-56. The Foley & Goldsworthy test on Section 11-30-60, Model Dome, did not go deep enough to yield anything of value, but may be completed in 1928. Uncompleted tests are drilling in Baca County, in the Phillips-Middleton Syndicate's No. 1 Jones, Section 26-34-48; in Bent County, in C. Frost Liggett's No. 1, Section 12-23-50; and on the Timpas Dome in Otero County, in the Reiter-Foster Oil Co.'s No. 1, Section 29-26s-57, all of which are headed for the Pennsylvania.

The Phillips Petroleum Co. drilled a test on the Buttes Structure in El Paso County, in Section 27-16s-65, which was abandoned at 3,570 feet in the Morrison formation topped at 2,884 feet. The Dakota was dry and the Lakota water bearing.

In Jackson County, the Continental Oil Co.'s No. 1 Sherman, NW Section 12-9n-79, its freak well making 150 bbls. of 54 gravity oil and 30,000,000 feet of carbon dioxide gas which came out of the well at a temperature of 110 degrees below zero from a total depth of 5,110 feet in the upper Dakota, was a 1926 completion, but results were not well established until early in 1927. The well was produced most of the year under unusual conditions. Two tests were started to the north, but have not yet been completed, and the same company is drilling a test on the south dome of the structure. Two shallow wells on the north dome were drilled to 650 and 1,000 feet to test out the shale horizons, but were abandoned upon obtaining unsatisfactory results. The oil from the discovery well is marketed through a 3-mile pipe line to the railroad where the company built a 55,000-bbl. tank and loading racks.

Northeastern Colorado Oil Co.'s No. 1 State, Section 36-8n-55, in Logan County, tested the main Dakota sand, which was 128 feet thick and dry at the top and water bearing at the bottom. It was topped at 5,292 feet. It was drilling to the lower Dakota at the end of the year.

One test in Yuma County, the Yuma Valley Oil Co.'s No. 1, Section 11-1n-44, was abandoned at 3,275 feet, probably in the Dakota which had water. The Miley Oil Co. drilled a test to the Morrison sand at 3,650 feet and encountered salt water in a La Plata County test, and the Ohio Oil Co.'s No. 1 Snyder, Section 11-33-12, also tested the Morrison, of McElmo, and found water. It was abandoned at 3,842 feet.

COLORADO

Summary of Completed Wells in 1927

District—	Comp.	Prod.	Dry	Gas
Larimer County	12	2,515	0	1
Fremont County	58	2,255	27	0
Moffat County	12	5,552	4	2
Routt County	11	1,132	5	0
La Plata County	3	2	2	0
Pueblo County	4	25	3	0
Boulder County	3	4	2	0
Jackson County	3	1,500	2	0
Las Animas County	3	0	0	3
El Paso County	1	0	1	0
Archuleta County	1	0	1	0
Yuma County	1	0	1	0
Montrose County	3	0	3	0
Garfield County	1	0	1	0
Montezuma	1	50	0	0
Elbert	1	0	1	0
Rio Blanco	2	5	0	1
Total, 1927	120	13,040	53	7
Total, 1926	89	16,455	38	6
Difference	31	3,415	15	1

Completions by Months

Month—	Comp.	Prod.	Dry	Gas
January	4	2,375	1	0
February	13	1,440	3	1
March	9	712	3	0
April	9	2,700	5	0
May	12	100	11	0
June	12	400	8	1
July	4	390	0	0
August	12	520	6	2
September	11	209	5	0
October	12	837	6	0
November	16	731	7	2
December	7	2,616	0	1
Total	120	13,040	53	7

Utah

Utah scored a blank in 1927 with 14 completions all of which were dry with the exception of one gas well. However, this discouraging result has not deterred some of the operators and prospecting will continue in 1928 not only in some new areas, but in the old districts to determine, if possible, the sources of numerous shows of oil and gas in wells drilled through enormous salt beds.

The area receiving the most attention embraced the so-called Colorado River structures south of Moab in southeastern Utah in Grand and San Juan Counties. Interest in this area started when the Midwest Exploration Co.'s No. 1 Frank Shafer, Section 6-27-21, on the Crane Creek Dome, made 350 bbls. of oil daily for several weeks and 2,000,000 feet of gas from a horizon at 2,028 feet. This well was drilled during the year to 5,000 feet. It cut immense beds of salt and had several important shows of oil and gas in addition to the one mentioned. The same company drilled to 5,863 feet in its No. 1, J. H. Shafer, on Section 17-27-20, Shafer Dome, where it abandoned the well, and to 3,520 feet in Snowden & McSweeney's No. 1, Section 5-27-21, Cane Creek Dome, which also was abandoned. The results of these tests caused the Midwest interests to withdraw from further operations and a deal was made with the Utah Southern Oil Co. to take over the equipment to test the Frank Shafer well and to drill one or more flank tests on the theory that the presence of the thick beds of salt indicated salt domes similar to those in the Gulf Coast region. All of these tests had good showings. However, the oil and gas generally was found in thin strata bedded in salt, and no true oil sands were found. The Utah Southern is starting a test on Section 36-26-20, Cane Creek Dome, to test out the theory. In the meantime, it plugged back the Frank Shafer well and is pumping it occasionally, obtaining 600 to 700 bbls. of fluid a day of which 25 per cent is oil, accompanied by considerable gas pressure. The Snowden & McSweeny well was 2 miles east of the Frank Shafer well and the Midwest interests considered it far enough down structure to test the salt dome theory.

The Union Oil Co. of California tested the Lisbon Dome in San Juan County, in its No. 1 State, NW Section 16-30-27, and abandoned it at 5,010 feet after going through 3,500 feet of salt. It encountered several pockets of oil and gas similar to those found on the other structures. The rig was stored and another test on the flank may be drilled in the spring.

South of these operations and away from the salt beds, the Midwest interests drilled a test on the Elk Ridge structure in the La Sal National Forest in its No. 1 Hughes, Section 30-34-10. It was abandoned at 4,422 feet in mica schist after cutting a thick sand in the lower Pennsylvanian topped at 4,035 feet and which proved to be dry. This is a very large structure, embracing 150,000 acres within the closing contour, and one well is hardly considered conclusive. Utah Southern Oil Co.'s No. 1 Nobel, Section 28-40-18, on the Cedar Mesa Dome in San Juan County, was a failure and was abandoned in granite wash at 3,620 feet after going through more than 100 feet of sand in the lower Pennsylvanian.

Drilling was resumed during the year on the Boundary Butte structure in San Juan County near the Arizona line where

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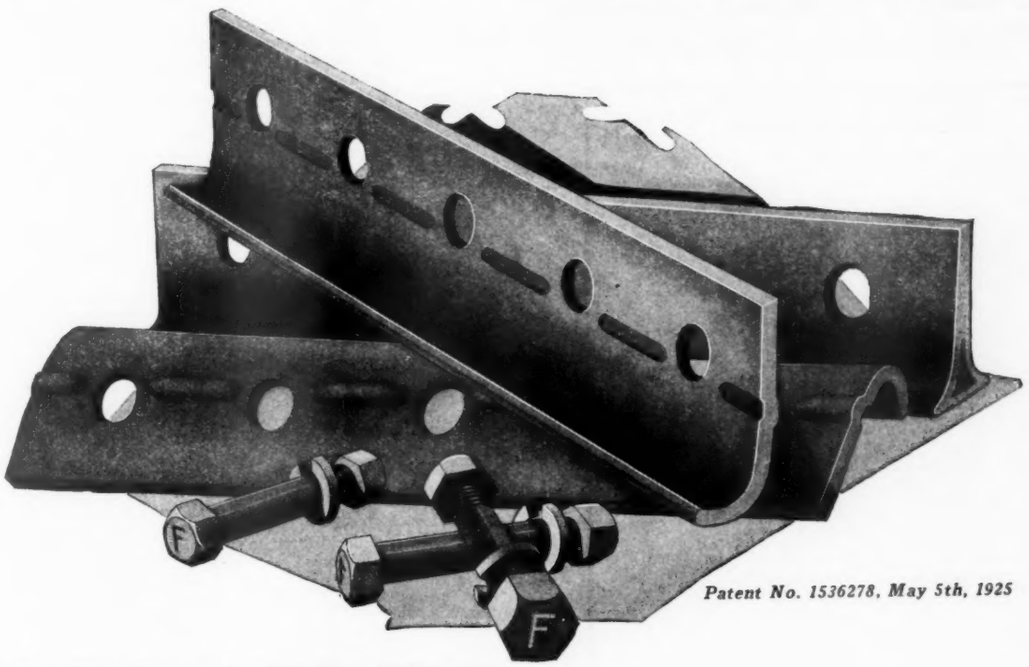

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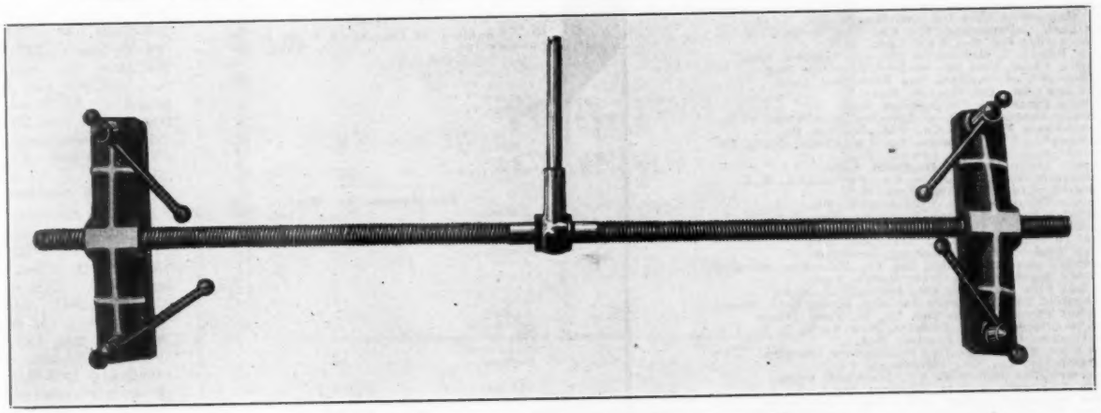

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the Midwest interests had put down a test on Section 22-43-22 to 1,590 feet where a show for 25 bbls. was found in the Shinarump conglomerate. Operations were suspended on this test for several years due to litigation over titles with the Government. After relief legislation was enacted by Congress, the Continental Oil Co. took over the drilling for the joint interests and the well is now on its way to the Pennsylvanian.

McGee & Holmes drilled a well to 2,464 feet on Section 14-15-10, near Price, and abandoned it after going through a dry sand topped at 2,225 feet. The Armstrong Co. drilled a test on Section 27-21-19, on the Crescent Dome in Grand County, and abandoned it at 1,320 feet.

At the end of the year the Texas Production Co. was drilling a test on Section 5-27-14, Sweetwater Structure in the Nequoia Arch, some distance west of the Colorado River structures, and the Phillips Petroleum Co. was starting a test on Section 16-27-16 on the Barrier Creek structure in the same region in Wayne County. The Midwest interests are drilling for the Sundance expected at 2,000 feet on Section 25-5s-22, on the Ashley Creek structure in Uintah County. No. 1 drilled two years ago, was a 60,000,000-foot gas well in the Morrison and No. 2, a little to the west on the same section was abandoned at 710 feet upon finding that it was down structure, and No. 3 is nearing the objective horizon. This operation was resumed after oil had been found in the Sundance below the Morrison on the Colorado side of the boundary. Midwest interests also went into the Duchesne district under a deal to drill down the No. 1 Early, Section 13-1s-6w, which had been idle at 2,867 feet for four years. This is a tertiary test. When work was resumed, it was found that 2,400 feet of oil and muck were standing in the hole. The test is being conditioned and has not yet cleaned out to bottom. There are close to a dozen other operations under way in the state but none of these yielded any important results during the year.

The Utah Oil Refining Co. sold its gas structure on the Cisco Fold in Grand County to the Crystal Carbon Co., and a carbon black plant was constructed by the new interests. Several gas wells were drilled and the plant is now in operation.

UTAH

Summary of Completed Wells in 1927

District—	Comp.	Prod.	Dry	Gas
San Juan County	7	0	6	1
Daggett County	1	0	1	0
Grand County	3	0	3	0
Carbon County	2	0	2	0
Uintah County	1	0	1	0
Total 1927	14	0	13	1
Total 1926	2	0	1	1
Difference	12	0	12	0

Completions by Months

Month—	Comp.	Prod.	Dry	Gas
January	0	0	0	0
February	1	0	0	1
March	0	0	0	0
April	1	0	1	0
May	2	0	2	0
June	1	0	1	0
July	0	0	0	0
August	2	0	2	0
September	3	0	3	0
October	2	0	2	0
November	2	0	2	0
December	0	0	0	0
Total	14	0	13	1

New Mexico

Drilling operations in New Mexico in 1927 resulted in a decrease in the number of wells completed as compared with the preceding year, the total being 113 compared with 187 in 1926, a decrease of 74. This was due principally to the curtailment of operations in the Artesia, Rattlesnake, Table Mesa, and Hogback Pools on account of the drilling up of proven areas, the decline in the price of crude, and oil in excess of requirements. Wildcatting continued on an extensive scale in 12 counties, the most active districts being in Lea and Eddy Counties in the southeastern part of the state, and in McKinley and San Juan Counties in the northwestern area. A small pool was opened up in the Hospah Dome in McKinley County, the Rattlesnake Dome in San Juan County, was extended 1½ miles to the south, and several discoveries were made in Eddy and Lea Counties.

In 1926 the Maljamar Oil & Gas Co. brought in the discovery well in what is known as the Maljamar Pool in its No. 1 Baish, Section 21-17-32, 30 miles east from the Artesia Pool and 3 miles east of the Eddy County line. Subsequently three other producers were completed in that area and at the end of 1927 the aggregate production was around 100 bbls. a day from the four wells. While this did not prove to be a major strike, it did serve to attract attention to that district with the result that a number of the major operators acquired blocks of acreage and drilled tests. Results in Winkler County, Texas, had a direct bearing on these operations on the theory that the folding extended over into New Mexico in the direction of Artesia. Surface conditions are not favorable for working out structures and the torsion balance, magnetometer and other geophysical instruments were employed extensively during the year to aid the geologists.

Developing Eddy County

The Texas Production Co.'s No. 1 Robinson, NE SW Section 25-16-31, in Eddy County, encountered a pay at 3,885 feet which gauged 8,000,000 feet of gas and 5½ bbls. of oil. The tools were lost at the bottom of the hole and the well was completed as a gasser. The company then moved over to the NW cor. Section 25-16-31, less than half a mile to the west and drilled its No. 2 Robinson. It proved to be lower structurally than the other well and had only a show of oil and gas in the horizon tested in No. 1, but found a deeper pay at 3,985-4,010 feet which swabbed 220 bbls. in 24 hours. The oil tested 31 gravity. The well is being deepened. The Pueblo Oil Co.'s No. 1 Gessert, NW NW Section 1-17-31, 1⅛ miles to the south of No. 1 Robinson, encountered some gas at 3,705 feet where completion has been delayed. The Gessert well topped the salt at 917 feet and bottomed it at 1,935 feet, and topped the lime at 3,570 feet. These discoveries on the eastern side of Eddy County encouraged the belief of the operators that somewhere in that area a major pool will be found. This belief was strengthened in the discovery of oil and gas in the Texas Production Co.'s No. 1 Rhoades, NE NW Section 15-17-32, in Lea County, 20 miles north of the Winkler County, Texas, production. The Rhoades well had 2,000,000 feet of gas at 3,040 feet, 16,000,000 feet at 3,130 feet. Another pay in the lime was encountered at 3,180-88 feet, and the well was temporarily completed at 3,216 feet, making 23,000,000 feet of gas and 20 bbls. of oil. Subsequently it was opened for a test and made 28,000,000 feet of gas and 120 bbls. of oil.

Oil Southeast of Artesia

A third discovery bearing on the general situation was made in the Getty Oil, Inc.'s No. 1 Hinkle, NE cor. Section 23-20-29, 10 miles southeast of the Artesia Pool. This well found the salt at 350-1,010 feet, and struck the pay at 1,365-68 feet. It swabbed 234 bbls. first 24 hours, then 146 bbls and 141 bbls. in successive 24-hour periods. It was then tubed and flowed 69 bbls. and 77 bbls. in two successive periods of 24 hours and was then shut down. Other tests in Eddy County were not so successful. The Marland Oil Co.'s No. 1 Hale, Section 11-20-30, found water in the objective Delaware formation and was abandoned at 3,500 feet. It cut the salt at 490-1,550 feet. Getty Oil, Inc., No. 1 Lenau, NW cor. Section 33-22-27, was abandoned at 3,137 feet, and the Skelly Oil Co.'s No. 1 Lynch, Section 22-17-31, developed a production of 15 to 18 bbls. daily at 3,822 feet, to which horizon it was plugged back after finding nothing deeper. The Superior Oil Co.'s No. 1 Keck-Community, SW NW Section 33-23-28, was a duster at 3,002 feet, and the Midwest Refining Co. had a failure in its No. 1 Terry, SW cor. Section 15-18-26, which was abandoned at 3,156 feet. The W. A. Stone Oil Co.'s No. 1 Hnulick, Section 25-17-26, was abandoned at 2,900 feet, and the Eastland Oil Co.'s No. 1 McClay, SW cor. Section 23-17-27, north of the Artesia Pool, was abandoned at 2,900 feet. The Ohio Oil Co. and Marland

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Oil Co., in a joint operation, in their No. 1 Workman, SW cor. Section 13-22-29, was plugged and abandoned at 3,260 feet. There were no new developments of importance in the Artesia Pool, the proven area being fairly well drilled up and no new horizons of consequence being discovered. The average daily runs showed a decrease of around 50 per cent between the beginning and end of the year, the 200, or more wells making a daily average of around 1,500 bbls. at the end of the year.

Deep Tests in Lea County

In Lea County, in addition to wells already mentioned, Henderson, Dexter & Blair's No. 1 Wyatt, SW SW Section 34-17-33, was drilled to a total depth of 5,370 feet without any important results. It has been shot at several higher levels, but so far does not give favorable indications of being a producer. The Texas Production Co. drilled a test in its No. 1 Jackson, SE cor. Section 4-20-34, and abandoned it at 4,010 feet. It topped the salt at 1,540 feet and bottomed it at 3,173 feet, and entered the lime at 3,690 feet. It ran into warm sulphur water at 3,790 feet. Same company also had a failure in its No. 1 Lockhart, Section 5-22-38, 25 miles north of its Rhoades well. It cut the salt at 1,630-2,765 feet, and topped the lime at 4,035 feet. It had some rainbow colors at 4,326-32 feet. The Cap Rock Oil & Gas Co.'s No. 1 State SE SW Section 11-16-32, had a show of oil in dark gray sand and dolomite at 4,620-30 feet, salt water at 4,855 feet, and was abandoned at 4,888 feet. The Maljamar Oil & Gas Co.'s No. 2 Beardsley, SE NE NE Section 15-17-32, is still drilling and has had some favorable shows. It topped the salt at 1,172 feet and had a show of oil at 2,655-75 feet and 100,000 feet of gas at 3,247-52 feet, and is still drilling. Inglefield & Bridges' No. 1 State, SE cor. Section 4-17-34, swabbed 270 bbls in seven days at 4,912 feet, swabbed 20 bbls. a day at 5,034 feet, and ran into salt water at 5,313 feet. It was abandoned at 5,329 feet. Owing to the difficulty in working out structures in that area at the surface, these wells have all proven beneficial in giving a general lineup on the trend of the folding and several tests now drilling were located with a better knowledge of conditions.

The Midwest Refining Co. drilled a test in Curry County in its No. 1 Rhoades, SW NW Section 30-8-31, which was a failure and abandoned at 3,650 feet.

In Chaves County, the Dunken Dome, which had been known for many years but never tested on account of difficulties in blocking up acreage, was given a test by the Texas Production Co. in its No. 1 Wilson, SW Section 29-17-18. It had 1,000,000 feet of gas at 2,900 feet and 500,000 feet of hydrogen sulphide gas at 4,390 feet, and was abandoned at 4,895 feet with 1,200 feet of brakish water in the hole.

Wildcatting in the Northwest

In the northwestern part of the state drilling was in progress over a wide expanse of territory, these being, with a few exceptions, mostly shallow wells in San Juan County, where the territory is rather spotted, and yielded nothing out of the ordinary except sufficient showings to encourage the operators. The Hogback Pool in San Juan County, witnessed no new drilling during the year and the latter part of the year was shut in except for such oil as was needed for local requirements. The wells were all pinched in when produced as there are indications that if opened to capacity they might go to water. The Continental Oil Co.'s No. 22, on the Rattlesnake Dome, Section 12-29-19, found the sand at 827-33 feet and made 1,000 bbls. initial, proving up an extension to the south of 1½ miles. The pool was produced as the oil was needed locally at the company's refinery at Farmington and none was shipped out of the state during the last half of the year. Table Mesa Dome had a few wells drilled early in the year, but has been inactive for several months.

In McKinley County, the Midwest Refining Co. drilled a test on the Hospah Dome in its No. 1 Hancock, NW Section 1-17-9 and encountered an oil sand in the Mesa Verde at 1,531-56 feet which made 244 bbls. in a short test, the oil being 30 gravity. It was drilled on down to 3,055 feet and found water in the Dakota sands. It was then plugged back and made 140 bbls. initial in the first 12 hours and 240 bbls. in the next 24 hours. This company then drilled its No. 34 on SW Section 36-18-9 and had a 50-bbl. well in the Mesa Verde at 1,614-29 feet. No. 1 Hurst, NE Section 1-17-9 was drilled to 1,610 feet and plugged back to 1,586 feet where it made 8 bbls. of oil and 10 gallons of water initial. No. No. 24, SE NE Section 2-17-9, had a water sand at 1,647-76 feet. The Producers & Refiners No. 1 Santa Fe, Section 25-18-9, was abandoned at 1,945 feet with water in the Mesa Verde. It then moved to the south end of structure and drilled No. 2 on the NE NW Section 12-17-9, and abandoned it at 1,877 feet. These tests make the structure look as if it might be a small producer over a limited area in the Mesa Verde, and a failure in the Dakota.

The Voght Structure in McKinley County had two tests drilled, one by the Ohio Oil Co. in its No. 1 Yontz, SE NW Section 18-16-9, and the Hogback Oil Co.'s No. 1, SE NW Section 12-16-10. The Yontz well was abandoned at 1,380 feet after going through a water sand at 895-1,070 feet, and the other was abandoned at 2,350 feet after cutting water sands at 1,115-32 and at 2, 90 feet. The Ohio Oil Co. also drilled a test on the Chico Dome in its No. 1 Nightingale, NW cor. Section 25-17-6, and found water in the Mesa Verde sand. It was abandoned at 1,790 feet. These results caused a loss of interest in McKinley County by the major operators, though the Continental Oil Co. is continuing a test on the Carica Dome in its No. 1, Section 9-17-7. This well had water in the Mesa Verde at 2,165 feet, but is being continued to the Dakota.

In Rio Arriba County, the Azotea Oil Co. drilled a test on the NE NE Section 2-31-2, which was abandoned at 2,041 feet.

NEW MEXICO

Summary of Completed Wells in 1927

Completions by Counties

County—	Comp.	Prod.	Dry	Gas
Eddy County	43	961	19	3
Chaves County	9	10	7	0
San Juan County	23	1,075	12	3
Quay County	1	0	1	0
Lea County	8	520	5	0
McKinley County	17	378	10	1
Curry County	1	0	1	0
Mora County	1	0	1	0
Sierra County	1	0	1	0
Valencia County	5	0	5	0
Colfax County	2	0	2	0
Rio Ariba County	2	0	2	0
Total, 1927	113	2,944	66	6
Total, 1926	187	9,990	66	1
Difference	74	7,046	0	5

Completions by Months

Months—	Comp.	Prod.	Dry	Gas
January	12	1,202	4	0
February	8	335	1	0
March	8	375	4	0
April	7	140	2	0
May	11	20	9	0
June	4	120	3	0
July	6	5	5	0
August	8	50	6	1
September	19	165	8	3
October	13	150	11	1
November	11	138	9	1
December	6	244	4	0
Total	113	2,944	66	6

GOOD YEAR FOR OHIO PRODUCERS OF GAS

(Continued from Page 158)

Lot 32, showed an open flow of 3,000,000 feet of gas. F. A. Brendall & Co. hit a 2,000,000-foot gas well at a test on the J. E. Boettler 152 acres, in Section 28, Franklin Township, Summit County.

In August, some excellent gas wells were uncovered. In Clear Creek Township, Ashland County, a 3,500,000-foot gasser was found on the Andy Paxton lease, and one good for 2,000,000 feet, on the G. W. Ferguson lease, both testing out some territory. No. 2 on the Etta J. Nowells lease, Lot 39, Holmes County and drilled by the East Ohio Gas Co., showed an initial production of 60 bbls., from the Clinton sand. A test well on the C. M. Parks lease, Section 10, Monroe Township, Coshocton County, measured 2,000,000 feet of gas and a second well on the Nyhart lease, Section 1, same township, showed an open flow

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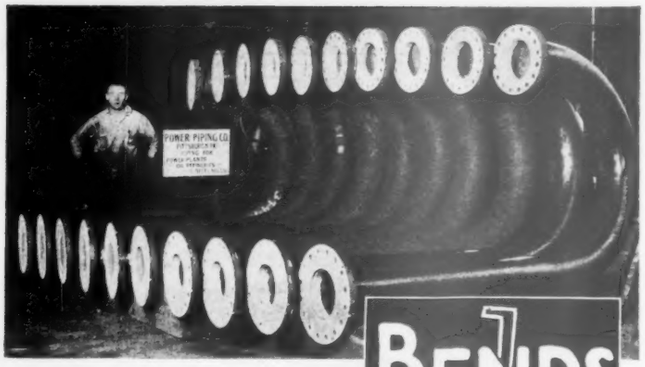

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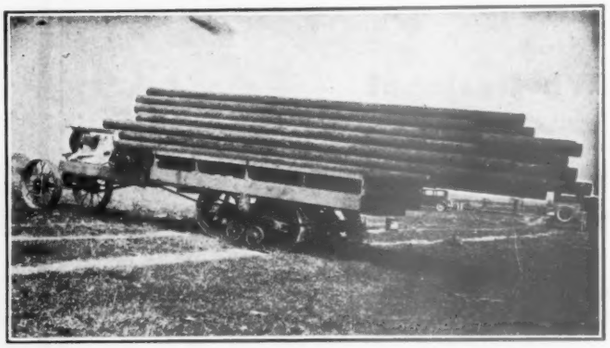

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close to 3,000,000 feet of gas. In Guernsey County, near Birmingham, Anson Henry Russell's No. 1 Branigar and No. 1 Edinburn leases in Section 21, Monroe Township, showed open flow gauges of 2,500,000 and 2,250,000 feet of gas, from the second Berea sand pay. A test on the McFadden lease, Section 8, Chester Township, Wayne County, had an open flow of 2,500,000 feet of gas. In Olmstead Township, Cuyahoga County, No. 1 on the G. W. Wagner 29 acres, in Lot 32, showed 3,500,000 feet of gas and No. 1 on the Don Hall farm, Lot 22, same township, produced a volume of 2,250,000 feet of gas.

During September, some very fine wells were uncovered in the gas belt. No. 2 on the Christian Kaylor lease, Section 16, Knox Township, Holmes County, 2,500,000 feet; No. 1 on the P. B. Stoble lease, Section 20, Jefferson Township, Knox County, 2,000,000 feet; No. 1 O. W. Holmes lease, Lot 82, Sullivan Township, Ashland County, 2,000,000 feet; No. 1. E. G. and M. Howard lease, Lot 15, Columbia Township, Lorain County, 3,000,000 feet; No. 1 L. A. Kruger lease, same lot, 2,500,000 feet; No. 3 Nyhart lease, Section 1, Monroe Township, Cochocton County, 4,000,000 feet; No. 2 E. M. Myers lease, Section 8, Chester Township, Wayne County, 2,500,000 feet; No. 2 B. C. Austin lease, Lot 32, Olmstead Township, Cuyahoga County, 4,500,000 feet; No. 1 Mandlekow lease, Lot 32, Strongville Township, same county, 2,000,000 feet, and No. 1. J. S. Snyder lease, Section 14, Richland Township, Holmes County, 1,750,000 feet. The East Ohio Gas Co. got a 150-bbl. initial oil producer in No. 3 on the H. & H. Bell 100 acres, Lot 29, Hardy Township, Holmes County, and the same company found a 25-bbl. initial producer at a test on the I. J. Woodford lease, Section 7, Richland Township, Summit County.

A Month of Big Gassers

In October, some very large gas wells were found in the Cleveland Field, of Cuyahoga County. In Strongville Township, of this county, a second test on the J. A. and J. G. Pack 75 acres, had an open flow of 6,250,000 feet of gas; No. 1 G. Beriswell 99 acres, Lot 49, same township, 2,000,000 feet; No. 3 on the W. D. Camp 30 acres, Lot 31, Olmstead Township, same county, 8,500,000 feet; No. 1 O. J. Paddock lease, Lot 30, same township, 3,000,000 feet, and No. 1 W. J. and C. Neeson, Lot 32, an open flow of 2,250,000 feet. In Monroe Township, Guernsey County, Birmingham Oil & Gas Co., No. 3 Braniger lease, Section 21, showed 2,000,000 feet of gas in the second Berea sand at a total depth of 1,246 feet. Kemrow Co.'s No. 1 Frank Ledbetter 39 acres, Section 17, Richland Township, Holmes County, good for 4,000,000 feet of gas. No. 1 on the R. G. Mars 60 acres, Section 27, Green Township, Ashland County, a 2,500,000-foot gas well. On the Steve Sells 70 acres, in Lot 22, Newcastle Township, Cochocton County, an oil well with an initial production of 93 bbls. was brought in by the Logan Gas Co.

In November, a second test on the Ross Langford lease, Lot 90, Sullivan Township, Ashland County, fell a little short of being a 3,000,000-foot gasser. On the G. G. Kennedy lease, Lot 30, Olmstead Township, Cuyahoga County, Hulse & Kundtz drilled a 5,000,000-foot gas well. The Birmingham Oil & Gas Co.'s No. 5 on the Braniger lease, Section 20, Monroe Township, Guernsey County, showed an initial volume of 2,600,000 feet of gas, from the second Bearea sand. A wildcat drilled on the Mary Groves lease, Section 6, Addison Township, Gallia County, shows a gas volume of 570,000 feet, and may mean the opening of a new oil and gas area.

During December, the biggest gas well found during the year was got by Hulse & Kundtz, in No. 1 on the L. M. Ames 29 acres, in Lot 28, Olmstead Township, Cuyahoga County, with a volume of 9,500,000 feet, and McGrath & Co.'s second well on the W. J. & C. Nesson lease, Lot 32, same township, is a 3,250,000-foot gasser. East Ohio Gas Co.'s test on the Robert Miller 162-acre lease, Section 28, Franklin Township, Summit County, reported with a volume of 4,500,000 feet of gas, while in the same section, the same company struck a 3,500,000-foot gas well, indicating that there is something big in the gas line in Summit County.

Indiana

Much wildcatting was done in the Indiana fields in 1927, 246 completed wells having been reported, of which 107 were dry holes, 31 gas wells and 108 oil wells, with an initial production of 3,776 bbls. When compared with the work during 1926 this shows an increase of 16 in completed wells, 36 fewer oil wells, 29,- bbls. less initial production, 45 more dry holes and seven more gas wells. During the year a total of old wells abandoned was 87 as against 34 for the previous year. Gibson County, in the southwestern part of the state was the outstanding point of development during the year, with 45 completions of which 19 were dusters, three gas wells, and 23 producing wells, with an initial production of 1,421 bbls. Pike County, which adjoins Gibson, also had 45 completions, 19 oil wells with an initial production of 317 bbls., 24 dry holes and 2 gas wells.

High-Gravity Oil

The oil thrills started early in the Indiana Field. In January the Siosi Oil Corp. drilled a wildcat on the John Hunt farm, NE NE Section 6, Fairbanks Township, Sullivan County and near the division line of Sullivan and Vigo Counties. This well found pay sand at a depth of 2,175 feet and in drilling 1 foot deeper encountered a vein of water. The oil tested 47.7 gravity and flowed 80 bbls. in tankage of wood and was reported to have evaporated over night owing to high gravity. Vapor tight steel storage was put up and when connected showed 80 bbls. a day. When this well was drilled in it was credited to A. R. Morris and others', which developed into the Siosi Oil Corp. later on. This well brought about the usual excitement and some good producers have been found along the division line of the two counties.

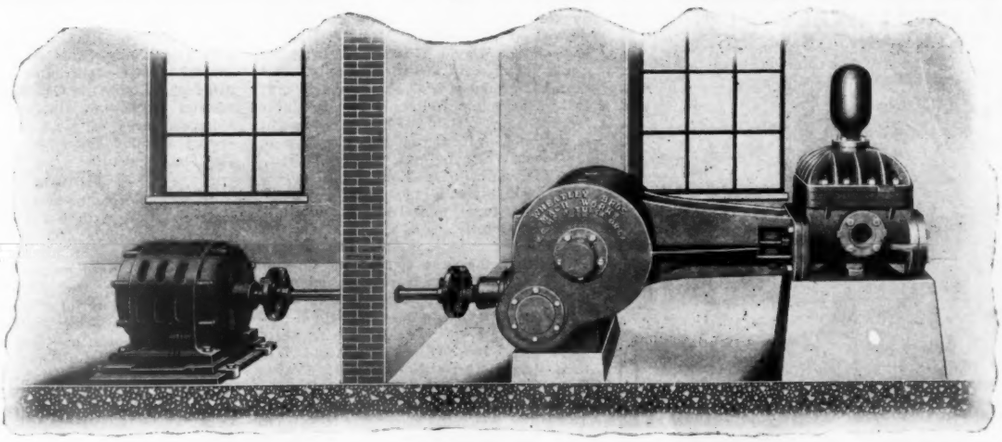
The only interesting result announced in February, was the completion of a dry hole by N. E. Masters on the J. M. Miller farm, west of Kokomo, in Howard County, a real wildcat venture.

March shows a few wells of note, not large but well worth having in these late days of Indiana oildom. Ridenour and others' found a 35-bbl. pumper in a test on the A. C. Brown farm, Section 33, Penn Township, Jay County, the oil coming from the Trenton sand. In Center Township, Gibson County, Mann & Huber's second test on the Margaret Hollingsworth farm, showed a natural production for the first day of 50 bbls. from a depth of 1,407 feet. In Veale Township, Daviess County, Hartman & Sargent's No. 1 on the F. B. Colbert farm, quarter of a mile northeast of the Peak farm well, in Section 21, showed a production of 120 bbls. first 24 hours. Phipps, Blosser and others' drilled a test 10 miles east of Washington, in Barr Township, same county, at 15 bbls. initial. Sunlight Oil Co. drilled a dry hole in a wildcat on the Charles Watt farm, Section 1, Greer Township, Warrick County.

April came to the front with another well far above the average when the Euclid Oil Co. brought in No. 4 on the Veirling heirs farm, in Section 28, Washington Township, Gibson County, put out 150 bbls. the first day from a depth of 1,637 feet. The Ohio Oil Co. drilled a wildcat on the James A. Stout farm, Section 26, Prairie Creek Township, Vigo County, but found blue lick water at a depth of 2,344 feet and abandoned.

The Trenton area got a nice well in May, when the George Slee Oil & Gas Co. found a 100-bbl. producer at a test on the W. Greenfield farm, in Jefferson Township, Adams County. In the southwestern part of the state, Joe Young and others' drilled in a 150-bbl. natural producer in a test on the D. Jenkins farm, in Center Township, Gibson County, at a depth of 1,400 feet. Cambridge Gas Co.'s test on the Lee Hall farm, in Center Township, Rush County, came in a gas

A New Wheatley Stationary Pumping Unit



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REDUCES FIRE HAZARDS—This New Wheatley Stationary Pumping Unit permits a partition to be erected between Motor and Pump. This reduces fire hazards to an absolute minimum as sparks from motor cannot ignite gases.

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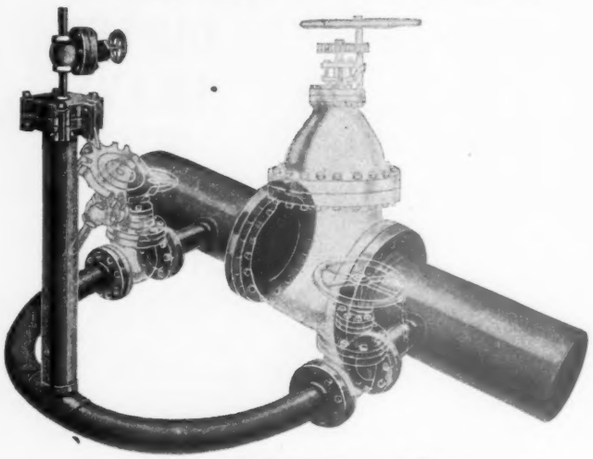

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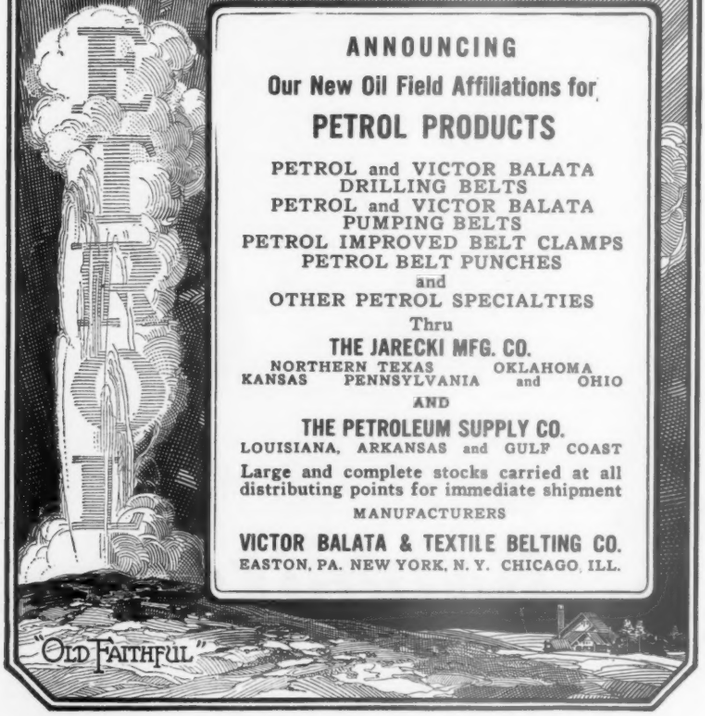

producer. Granville Lee struck a gas well on his farm, in Ohio Township, Bartholomew County.

During June, in Washington Township, Blackford County, in the Trenton Rock Field, the Roberd-Herman Oil Club's test on the Jacob Rinker farm, Section 7, showed 30 bbls. initial. Mann & Huber's test on the David Hutchinson lease, in Center Township, Gibson County, Section 16, produced 225 bbls. naturally at 1,418 feet, being Indiana's best producer for the year. Henry Skidmore brought in a 40-bbl. natural producer in a test on the Jacob Williams farm, Section 2, Madison Township, Pike County. Siosi Oil Corp. brought in a second test on the J. R. Thomas farm, in Fairbanks Township, Sullivan County, good for 60 bbls. at 2,105 feet.

In July, the best completion for the month was made by Hartman & Sargent in No. 1 on the L. I. Veale farm, in Veale Township, Daviess County, with a production of 225 bbls. initial, at a depth of 1,322 feet. Siosi Oil Corp.'s No. 1 William Riggs farm, Section 31, Prairie Creek Township, Vigo County, showed an initial production of 125 bbls. In Wabash Township, Adams County, the I.M.O. Oil Co.'s test on the Neuenschwander farm, produced the first 24 hours 24 bbls. from the Trenton Rock.

Exceptionally Good Wells

In August some exceptionally good wells were recorded. Mann & Huber's second test on the David Hutchinson farm, Section 13, Center Township, Gibson County, put out an initial of 125 bbls. from sand at 1,416 feet. Joe S. Young and others' No. 4 on the Margaret Hollingsworth farm, same section, also produced an initial of 125 bbls., natural, at 1,430 feet. Same parties, No. 2 L. Jenkins farm, same section, produced 200 bbls., natural, from a sand at 1,413 feet. William Bell and others' test on the J. E. Zimmerman farm, Section 1, Washington Township, same county, produced 70 bbls. the first day from sand at 834 feet. In Veale Township, Daviess County, Hartman & Sargent's No. 1 Otis Wildman farm, Section 21, showed an initial of 125 bbls., from a depth of 1,185 feet.

During September, Paul G. Gombert drilled a test on the James Myers farm, Section 16, Bear Creek Township, Jay County, in the Trenton sand, with an initial of 40 bbls. The Ohio Oil Co.'s test in the southwest corner of the Rufus Morgan farm, Section 26, Madison Township, Pike County, found a 48-bbl. initial producer at a depth of 959 feet. Siosi Oil Corp. drilled No. 3 on the J. R. Thomas farm, Section 6, Fairbanks Township, Sullivan County, for an initial producer of 70 bbls.

In October, the Siosi Oil Corp. drilled No. 2 on the William Riggs farm, in Section 31, Prairie Creek Township, Vigo County, getting an initial production of 90 bbls., while No. 4 on the same farm, but in Section 32, produced 100 bbls. initial. Murphy Oil Co.'s test on the C. Cooper farm, Section 30, Harrison Township, Knox County, was credited with an initial of 18 bbls. at a depth of 1,205 feet. William Bell and others' test on the Frank Lindsay farm, Section 6, Washington Township, Gibson County, had an initial production of 30 bbls. from a depth of 1,355 feet.

In November, Leo Wood drilled a wildcat on the Byron Shadle farm, near Twin Bridges, in Huntington County, and in advance of production, getting a 25-bbl. initial production, which may probably develop new producing area when new work starts in the spring. Unnamed parties drilled a wildcat on the Albert Leuenberger farm, near Monroeville, Allen County, in the Trenton Rock Field, getting a good gas well at a depth of 1,410 feet. In Gibson County, William Bell and others' No. 1 C. L. Muncey farm, Section 1, Washington Township, had an initial production of 60 bbls. from a depth of 1,565 feet. Siosi Oil Corp. drilled in No. 4 J. R. Thomas farm, Section 6, Fairbanks Township, Sullivan County, for a 100-bbl. initial producer. After drilling along for close to a year, D. D. Flanagan's No. 1 on the Dr. Hoover farm, Section 2, Jackson Township, Spencer County, has been completed for a production of 12 bbls. This well is far in advance of production. Public Utilities Co. got a gas well on the Stowers lease 4 miles south of Greensburg, in Decatur County, at 936 feet.

In December, a purely wildcat venture by the Freeport Gas Co., on the David farm, Section 15, Hanover Township, Shelby County, and near Morristown, showed a fair gas volume at a depth of 910 feet. Louisville Gas & Electric Co.'s test on the Meade Glasgow farm, in the Dogwood area of Harrison County, reported at 500,000 feet of gas at around 700 feet in depth.

Illinois

Illinois petroleum sections had a bad year in 1927, with but 161 completions reported, of which 65 were dry holes, 8 gas wells, and 88 producing oil wells with an initial production of 2,244 bbls. Compared with the 1926 season this shows a decrease of 202 in completed wells, 5,693 bbls. less initial production, 60 less dry holes, one less gas well and 143 less producing oil wells. This is the heaviest slump found in either of the four divisions comprising the Central West Field, and operators do not appear to know which way to go to find new producing regions, although there still remains many locations undrilled within old defined limits, Illinois has so many producing sands to draw oil from in the old fields, there being as high as nine producing sands in Lawrence County. The McCloskey sand, found to be the deepest, ranges from 1,750 to 2,100 feet in depth. This sand is thin, but has proven a wonder in production and staying qualities. It resembles the Gordon sand, being similar in every detail. There were 37 wells abandoned in the state during the year 1927 against 64 for the previous year.

Illinois' Deepest Hole

The deepest hole in Illinois was drilled in 1927. This venture was made by the Ohio Oil Co., in its No. 23 on the J. R. Middaugh farm, Section 32, Bridgeport Township, Lawrence County. It was completed in March at 5,185 feet, where a heavy dose of salt water was encountered.

In January the Ohio Oil Co.'s test on the McCutcheon farm, Lamoine Township, McDonough County, in the northwestern part of the state, was reported at 15 bbls., initial.

During February, Joe S. Young and others' test on the J. C. Sparks farm, Section 36, Wabash Township, Wabash County, northeast of the Allendale Field, reported at 150 bbls., natural, at 1,376 feet.

Nothing of interest took place in March, but April came forward with much better results, as the Ohio Oil Co.'s No. 18 on the Robbins No. 2 farm, Dennison, Township, Lawrence County, showed 100 bbls. initial, and in the center of the old producing area, Miller & Lengelsen's test on the A. B. Keen farm, in Friendsville Township, Wabash County, showed 75 bbls. at 1,624 feet. Timberlake & Higgins' test on the Willerton farm, Section 18, Jacksonville Township, Morgan County, far west of production, reported good for 2,000,000 feet gas at 435 feet deep.

During May, Rhodes & Keith's No. 1 on the McNurlin farm, Martinsville Township, Clark County, did 65 bbls. from the Niagara limestone formation at 1,600 feet.

In June, just at the outskirts of Bridgeport, the Big Four Oil & Gas Co.'s test on the Umfleet farm, in Bridgeport Township, Lawrence County, started at 30 bbls., from the Kirkwood sand at 1,624 feet. Silurian Oil Co.'s No. 18 on the William Ross farm, Petty Township, Lawrence County, produced an initial of 75 bbls. from the McCloskey sand.

During July, Timberlake & Higgins drilled in the best well found in Morgan County, in their No. 8 on the Mohon farm, Section 8-15-9w, which did 17 bbls. in 12 hours.

In August, the Ohio Oil Co. drilled in No. 19 on the Laura J. Jenners farm, Section 26, Dennison Township, Lawrence County. This well was put on the pump and produced from three sands, the Kirkwood, Tracy and McCloskey, the

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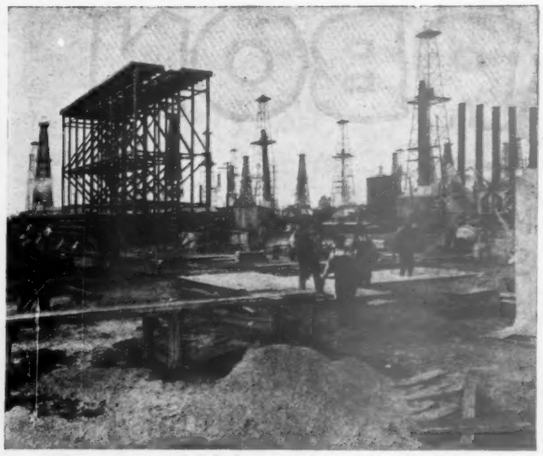

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Oil-Froth Absorbers

total depth being 1,814 feet. The well had an initial of 80 bbls. In the same township, Phipps, Blosser and others' test on the Wesley Clark farm, Section 2, found the top of a stray sand at 850 feet and at 20 feet in the well produced an initial of 120 bbls. Edgar County was given a deep test when the Ohio Oil Co. drilled No. 1 on the W. A. Thompson farm, Section 30, Stratton Township, to a depth of 1,925 feet and got a duster. H. R. Martin and others' second venture on the Asa Gher farm, Section 6, Wabash Township, Wabash County, produced an initial of 80 bbls., at 1,356 feet.

During September, Timberlake & Higgins' No. 9 on the Mahon farm, Section 8, Jacksonville Township, Morgan County, produced 19 bbls. of crude in eight hours from a depth of 291 feet.

In October, a test drilled by Zemple and others' on the D. E. Val farm, Section 36, Bethel Township, McDonough County, was dry at 970 feet. Weber & Cole drilled a wildcat on the W. O. Powell lease, Section 3, Gilmer Township, Adams County, which was dry at 850 feet.

In November, Rhodes & Keith's test on the Oral Cavolt farm, Section 31, Martinsville Township, Clark County, pumped 18 bbls. initial from the Niagara lime at a depth of 1,584 feet. W. C. McBride, Inc., drilled a test on the Lou Callihan farm, Section 25, Casey Township, Clark County, and found a stray sand at 1,320 feet, which produced an initial of 18 bbls.

During December, W. C. McBride, Inc., drilled a test on the J. Connelly farm, Section 2, Johnson Township, Clark County, getting a 20-bbl. initial pumper at 530 feet in depth.

CENTRAL WEST SUMMARY
Result of Field Operations in 1927 in Four Divisions

Field—	Comp.	Prod.	Dry	Gas	Abd.	New Oil Wells
Lima	262	2,973	35	16	419	211
Central Ohio	443	2,706	105	260	0	78
Indiana	246	3,776	107	31	87	108
Illinois	161	2,244	65	8	37	88
Total 1927	1,112	11,699	312	315	543	485
Total 1926	1,575	23,468	359	329	479	887
Difference	463	11,769	47	14	64	402

SUMMARY OF FIELD OPERATIONS FOR 1927

LIMA FIELD
Summary of Wells Completed in Northwestern Ohio in 1927

Month—	Comp.	Prod.	Dry	Gas	Old Wells Abd.
January	23	216	2	1	8
February	19	167	1	0	7
March	21	162	2	1	9
April	23	183	4	2	25
May	22	284	2	1	21
June	18	118	4	2	35
July	21	264	2	1	36
August	22	313	2	3	110
September	33	402	8	3	65
October	25	318	2	2	36
November	21	339	2	0	27
December	14	205	3	0	40
Total 1927	262	2,973	35	16	419
Total 1926	460	7,100	84	13	381
Difference	198	4,127	1	3	38

Summary by Counties

County—	Comp.	Prod.	Dry	Gas	Old Wells Abd.
Wood	44	351	5	1	146
Hancock	26	372	5	1	26
Allen	21	492	0	0	67
Auglaize	43	643	9	1	25
Sandusky	20	154	1	0	62
Mercer	31	230	3	3	22
Van Wert	1	0	1	0	14
Seneca	11	80	5	0	3
Lucas	4	39	0	1	20
Ottawa	22	170	3	3	11
Shelby	13	124	1	0	0
Hardin	14	227	1	2	0
Darke	7	76	1	0	10
Paulding	1	0	0	1	3
Logan	1	0	1	1	0
Wyandot	3	15	0	2	0
Total	262	2,973	35	16	419

CENTRAL OHIO
Summary of Wells Completed in 1927

Month—	Comp.	Prod.	Dry	Gas	Oil Wells
January	36	132	10	23	3
February	34	401	7	19	8
March	33	415	9	16	8
April	31	247	9	16	6
May	30	293	6	9	5
June	25	250	7	8	10
July	35	78	11	21	3
August	53	352	10	31	12
September	49	186	5	35	9
October	36	186	6	24	6
November	53	56	13	33	7
December	38	10	12	25	1
Total 1927	443	2,706	105	260	78
Total 1926	522	4,358	138	285	99
Difference	79	1,652	33	25	21

Summary by Counties

County—	Comp.	Prod.	Dry	Gas	Oil Wells
Knox	28	100	12	14	2
Ashland	55	9	17	32	
Medina	63	35	19	29	
Lorain	15	0	2	13	
Wayne	25	0	7	18	
Holmes	84	2,283	15	23	
Athens	15	0	4	11	
Coshocton	31	193	9	18	
Cuyahoga	93	15	16	59	
Summit	6	25	1	4	
Guernsy	11	0	0	10	
Muskingum	1	0	1	0	
Gallia	1	0	0	1	
Fairfield	1	0	0	1	
Lawrence	1	0	0	1	
Starke	2	0	1	1	
Jackson	1	0	1	1	
Total	443	2,706	105	260	

INDIANA
Summary of Wells Completed in 1927

Month—	Comp.	Prod.	Dry	Gas	Old Wells Abd.
January	13	174	5	0	
February	12	96	5	0	
March	13	355	6	3	
April	28	310	16	1	
May	19	314	8	3	
June	37	455	15	8	
July	16	525	6	0	
August	20	653	12	1	
September	14	176	5	2	
October	27	370	8	6	
November	28	308	10	5	
December	14	40	10	2	
Total 1927	246	3,776	107	31	
Total 1926	230	4,073	62	24	
Difference	16	297	45	7	

Summary by Counties

County—	Comp.	Prod.	Dry	Gas	Old Wells Abd.
Blackford	1	30	0	0	
Jay	22	236	9	0	
Adams	23	284	6	1	
Grant	1	0	1	0	
Huntington	1	25	0	0	
Wells	2	0	2	0	
Delaware	0	0	0	0	
Randolph	1	2	0	0	
Allen	2	0	0	2	
Pike	45	317	24	2	
Gibson	45	1,421	19	3	
Sullivan	11	317	6	0	
Daviess	41	714	22	1	
Martin	1	0	1	0	
Vigo	8	340	3	1	
Knox	5	65	1	0	
Howard	1	0	1	0	
Warwick	3	0	3	0	
Spencer	4	22	2	0	
Madison	1	0	0	1	
Kosciuski	2	0	0	2	
Bartholomew	2	0	1	1	
Rush	1	0	0	1	
Perry	1	0	1	0	
Hancock	2	0	0	2	
Harrison	10	0	2	8	
Shelby	3	3	0	3	
Franklin	1	0	1	0	
Lawrence	2	0	0	2	
Hamilton	1	0	1	0	
Wayne	1	0	0	1	
Decatur	1	0	0	1	
Tipton	1	0	1	0	
Total	246	3,776	107	31	

ILLINOIS
Summary of Wells Completed in 1927

Month—	Comp.	Prod.	Dry	Gas	Old Wells Abd.
January	15	151	4	2	
February	4	180	0	0	
March	13	226	2	0	
April	15	327	6	3	
May	9	155	6	0	
June	11	191	2	1	
July	11	114	4	0	
August	19	390	10	0	
September	18	133	9	2	
October	15	107	8	1	
November	19	215	7	0	
December	12	55	7	0	
Total 1927	161	2,244	65	8	
Total 1926	363	7,937	125	7	
Difference	202	5,693	60	1	

Summary by Counties

County—	Comp.	Prod.	Dry	Gas	Old Wells Abd.
Clark	21	237	12	0	
Cumberland	3	4	1	0	
Crawford	30	113	9	2	
Lawrence	29	872	2	1	
Wabash	58	959	27	3	
Marion	3	9	2	0	
McDonough	3	15	2	0	
Morgan	7	36	3	3	
Edgar	3	0	3	0	
Madison	1	0	1	0	
Clinton	1	0	1	0	
Coles	1	0	1	0	
Adams	1	0	1	0	
Total	161	2,344	65	8	

POOL NEAR MUSKEGON, BUSY YEAR IN SAGINAW

(Continued from Page 157)

It has since declined to a very small pumper.

The Saginaw News-Courier gives an interesting report on the Saginaw Field:

Muskegon was the first to rekindle the waning interest in oil in Michigan with news of the Muskegon Oil Co.'s gusher near that town that was said to be doing 500 bbls., but later, on the basis of reliable reports from the west Michigan city, said to be making 15 to 200 bbls. a day. That well drew the attention of the oil men to the west, and hardly had it

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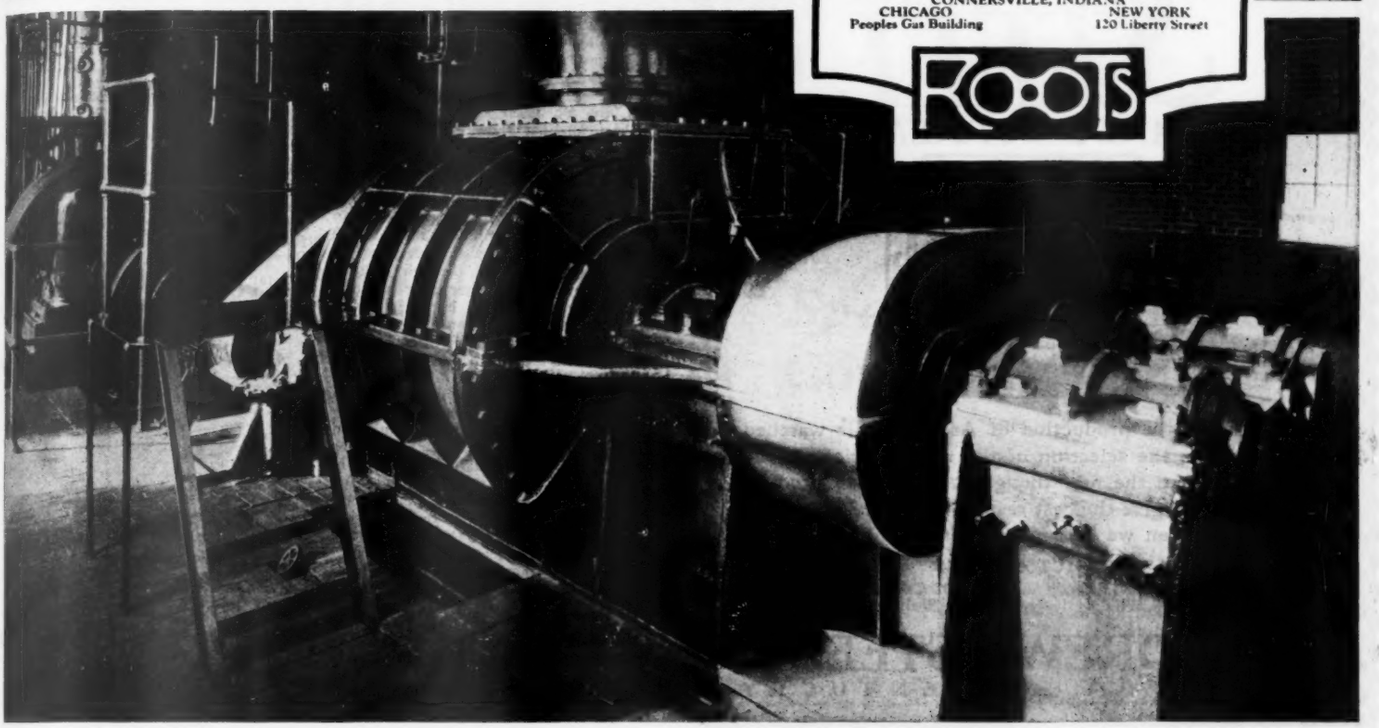

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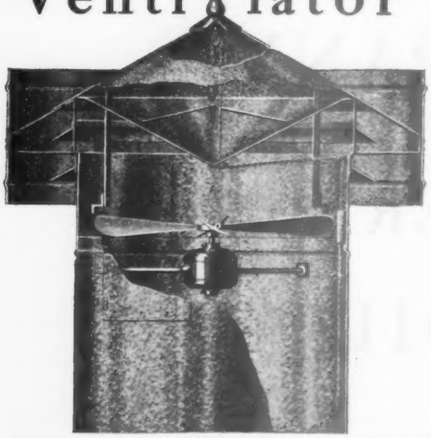

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centered there before it was jerked back again to the Saginaw district.

Ashley Promising, Too

Over near Ashley, in Gratiot County, where drillers had tried all summer to develop a field and had almost given it up as a bad job, came reports of a good show of oil and then later reports of a well that was making 20 bbls. a day, where few expected oil could be found. Two operations in widely separated parts of the State have yielded unexpectedly promising results, and there is little doubt among oil men that it will stir up considerable more wildcatting. Nor are these the only signs that are more or less promising. There are reports of a gas well at St. Clair, St. Clair County, and there has been a slight show in the Pure Oil Co.'s widlcat in Midland County, though there is considerable doubt among oil men as to whether this is very enticing.

Will Stimulate Wildcatting

"The search for wildcat production in Michigan needed a stimulus such as the last few weeks of the year have given it, for it was languishing through lack of nourishment. All summer long wildcatters were prodding the earth in many parts of the State without much result until the Muskegon and Ashley wells came along to bring light into their lives. And these two shows are likely to have another effect, that of increasing the attention paid to the so-called "Saginaw sand." Oil men had about lost faith in that lime structure when the hopes raised by the Sun's 475-bbl. gusher in the Saginaw Field last spring had been dashed to earth again by an almost complete failure to find any more production in the Saginaw sand. Only two other wells developed much production from the Saginaw, though a number were drilled. Now oil men are giving it attention again, and though they realize that the Muskegon and Ashley showings may be freaks such as the Sun's Saginaw gusher apparently was, they are hopeful that the Saginaw sand may turn out to be much less black than it was painted.

As the Saginaw Field stands today, most of the town lot stuff has been drilled up. The major companies have for the most part little or nothing left to drill, and only a few of the companies, mostly the large ones, still have undrilled acreage. The majority of the field has settled down to a steady production basis and it must be admitted that a good many of the smaller producers, particularly those who drilled town lots, have not found the wealth rolling in as rapidly as they once expected.

But for all of that, oil is a substantial industry in the Saginaw Field. It is reliably estimated that the present production of the field is from 1,000 to 1,200 bbls. a day, no insignificant item when it is remembered that the oil is bringing from $1.71 to $2.05 a barrel, according to the kind of oil and the sales arrangements made. It is conservatively estimated that even with the low prices prevailing during the early months of the year, oil brought Saginaw a revenue of close to $800,000 during 1927.

The year brought to the field a systematic development that sharply defined its outlines in every direction but one. That is where it extends beneath the east side business district. Several wells were drilled in this territory, but adoption of a zoning ordinance by the city put a stop to drilling on valuable business and residential property and ended what might have been an extension of the field to the southeast. Nobody knows how far this might have gone. There was some oil found on Phalen street in the Saginaw sand, 2 blocks east of Warren Avenue, but it failed to hold up. Drilling in every direction from the proved pool, with that exception, showed pretty definitely where its borders lie. Within the borders drilling of Berea wells became largely routine rather than adventure.

Oil men had some trouble during the year with the price situation. When Saginaw oil was first found it brought a price of $2.95 a barrel, but late in 1926 the price started to drop. It got down as low as $1.46, Saginaw producers entered into negotiations with the principal buyers of the oil and were able to obtain an increase, which finally was brought up to $1.95 a barrel.

Leases Recorded

During 1927 leasing activities in the Saginaw district showed a heavy decrease. In 1926, 1,604 leases were filed for record at the Record of Deeds, while during the past year there were only 77 leases filed. Practically all the leases recorded for 1927 were on property in the southwestern and southern portions of Saginaw County. The previous year practically all of the leasing was done and confined to the northern part of the county.

MICHIGAN
Summary of Wells Completed in 1927

Month—	Comp.	Prod.	Dry	Gas
January	23	357	3	1
February	22	350	3	1
March	24	860	1	0
April	19	353	3	0
May	25	434	1	0
June	25	506	0	2
July	26	407	4	0
August	23	375	1	0
September	24	272	4	0
October	39	275	16	0
November	4	80	1	0
December	10	58	5	1
Total 1927	264	4,327	44	5
Total 1926	105	1,884	16	0
Difference	159	2,443	28	5

Summary by Counties

County—	Comp.	Prod.	Dry	Gas
Saginaw	238	4,290	34	5
Shiawassee	6	9	5	0
Gratiot	5	0	4	1
Midland	1	0	1	0
Alcona	1	0	1	0
Genesee	1	0	1	0
Muskegon	2	20	1	0
Iosco	1	0	1	0
Wayne	1	0	1	0
Mason	1	0	1	0
Newaygo	1	0	1	0
Van Buren	2	5	1	0
St. Clair	1	0	0	1
Livingstone	1	0	1	0
Macomb	1	3	0	1
Arenac	1	0	1	0
Total	264	4,327	44	7

OLD LOWER SOUTHWEST HAD VERY DULL YEAR

(Continued from Page 158)

Allegheny County for a consideration of $60,000.

Market Was Low

Down to almost the close of the year the trend of the crude oil market was low. At the beginning of the year the quotation for crude of the regular Pennsylvania grade was $3.05. In January it was advanced to $3.30 and then on February 23 was reduced to $3.15. March 7 it was reduced to $3.05. On April 13 it was cut to $2.80 and remained at that figure until August 1 when it was still further reduced to $2.55. No further change took place until December 3 when it was advanced to $2.60 and again on December 17 was advanced to $2.65, where it remained to the close of the year.

Under conditions that prevail in the East, operators claim that they can not drill at a profit when the crude market is below $4 a barrel. It can readily be seen what a hard proposition oil men of the East are up against. The outlook for the immediate future is not promising.

The appended tables show the number of wells completed, new production, dry holes and gas wells completed during the last half and for the full year just closed. Compared with the preceding year they show a decline all along the line. A comparison of new work at the close of the year shows quite a falling off in new work as compared with the close of the previous year:

LOWER EASTERN FIELDS
Recapitulation of Completed Work

	Comp.	Prod.	Dry	Gas
Southwest Pa.	192	949	53	13
West Virginia	840	3,663	160	60
Southeast Ohio	918	12,006	197	174
Total, 1927	1,950	16,618	409	679
Total, 1926	2,458	25,690	477	797
Difference	508	9,072	68	118

COMPLETIONS BY STATES
Southwest Pennsylvania

	Comp.	Prod.	Dry	Gas
January	18	181	4	1
February	17	147	4	1
March	12	60	4	1
April	20	300	9	1
May	14	41	5	1
June	23	135	7	1
July	13	5	8	1
August	10	5	3	1
September	20	11	5	1
October	8	12	0	1

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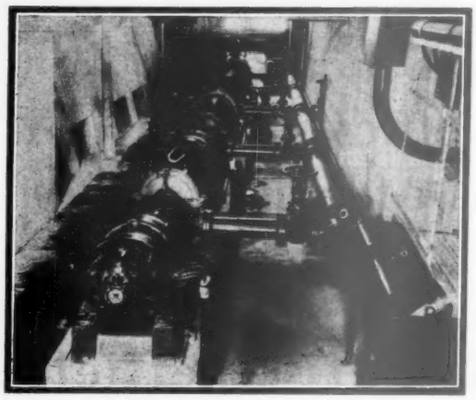

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November	27	49	4	18
December	10	11	5	2
Total, 1927	192	947	52	89
Total, 1926	234	4,199	56	106
Difference	42	3,252	4	17

West Virginia

	Comp.	Prod.	Dry	Gas
January	70	710	13	30
February	66	220	11	40
March	77	145	16	29
April	58	639	8	23
May	66	198	14	33
June	60	208	8	34
July	60	153	11	30
August	68	436	13	30
September	56	257	14	47
October	79	135	17	41
November	81	263	22	36
December	70	284	13	35
Total, 1927	840	3,663	160	408
Total, 1926	1,122	14,317	210	139
Difference	282	10,657	50	309

Southeast Ohio

	Comp.	Prod.	Dry	Gas
January	84	1,202	14	24
February	70	1,308	4	17
March	74	1,804	11	15
April	60	1,555	13	9
May	87	1,344	26	12
June	75	1,026	21	8
July	81	244	21	12
August	73	972	12	15
September	93	1,104	23	16
October	65	812	13	10
November	82	227	26	21
December	54	408	15	14
Total, 1927	918	12,006	197	173
Total, 1926	1,122	14,317	210	199
Difference	204	2,311	13	26

In the Northern District

Notwithstanding the very unsatisfactory state of the crude market throughout last year the Allegany-Bradford Fields in southern New York and northern Pennsylvania broke their record of completions for over 40 years with a total of 2,287. In 1926 the record was 1,841 wells completed in the two fields which have been active for many years, the Bradford Field since 1875 and Allegany since the very early eighties.

Only 9 dry holes were drilled last year in the two fields, which have for several years been enjoying an intensive development as a part of the system of recovering the oil from the sands by means of the water drive and compressed air. Given an average of 1,300 feet to the well a total of 2,983,000 feet of hole was drilled in the course of the year in the two ancient fields.

The Venango-Clarion district, the cradle of the American oil industry saw the completion of 309 wells of which 53 were gassers. It was rather a dull year compared with 1926 when 397 wells were drilled in the district.

The Middle Field, around Kane and Warren completed only 57 wells as against 95 completions in 1926.

EASTERN FIELDS
(Northern Division)
Summary of Completed Wells in 1926

	Comp.	Prod.	Dry	Gas
Allegany	492	1,252	5	6
Bradford	1,795	4,106	4	3
Middle Field	57	122	2	5
Venango-Clarion	309	342	20	53
Butler-Armstrong	121	161	22	34
Total 1927	2,774	5,983	53	101
Total 1926	2,482	4,975	95	89
Difference	292	1,008	42	12
Total 1925	2,145	4,754	105	119

BIG GAS YEAR IN LOUISIANA-ARKANSAS

(Continued from Page 154)

on and Garrett-Modisette Drilling Co. and Phillips Petroleum Co., which had bought a half interest from Garrett-Modisette in the Walber well, No. 1 Cordell, in Section 6-18-13, had developed a well showing for commercial production from 5 feet of sand at 2,979-84 feet. Put on the beam it pumped 30 bbls. of oil and 542 bbls. of water for awhile, but failed in the end. These two wells were followed by a dozen more operations in that locality some of which came in with huge gas production only to go to water within a week after they had been turned into the lines while others in the vicinity of the Walber well repeated that wildcat's performance, and by June the story of Lawson had been told and that area abandoned.

Fourth Smackover Sand

While this was happening, Stewart and others were exploring in Smackover for a fourth, lower, sand. They found it in No. 6 Murphy, in Section 9-16-15, Union County, which pumped 40 bbls. of oil from 2,779-81 feet and was followed by two or three more successes, but about that time crude prices hit the toboggan making such deep holes with their prospective small production hardly worth while. Then came the floods and what the crude cuts had left of any inducements for further drilling was wiped out. The two marked the beginning of Smackover's long rest. The field has not been active since though an occasional completion is still recorded.

Champagnolle

Arkansas' next contribution to relieve the monotony was the Rovenger Oil Corp.'s well in Section 4-17-14, about 12 miles northeast of El Dorado, No. 1 McCain, completed June 8, pumping 10 bbls. of oil and 30 bbls. of salt water from 8 feet of sand at 2,826-34 feet. It was followed two weeks later by Ohio Oil Co.'s No. 1 Crain, in Section 1-17-14, pumping 50 bbls. of clean oil from 3,014 feet, from 15 feet of sand at 3,000-15 feet, an entirely different sand from that producing in the Rovenger well.

The Ohio's well was followed by completion on August 8, of the same company's No. 1 Pumphrey, in Section 1-17-14, as a salt water well at 3,212 feet defining the northern limit of the prospective new pool. Since then, the character of successive completions, their behavior and a check of their logs inclines to the opinion that all wells so far completed in both divisions of the pool are on the north and northwestern edge.

Active development of the pool since the Ohio's No. 1 Pumphrey dates from September 30, when Magnolia Petroleum Co. completed No. 1 Carroll, in Section 1-17-14, flowing 300 bbls. of pipe line oil with considerable gas from a total depth of 2,982 feet, two locations east of the Ohio's salt water well. Immediately Eddy Jones, one of the few individuals holding acreage in Champagnolle—the bulk of that stuff being in the hands of the Ohio Oil Co., Pure Oil Co., Magnolia Petroleum Co., and one or two other majors, made location in Section 2-17-14, for four wells necessitating offsets by the Ohio, his first completion being No. 1 Crain, completed November 23, with 15,000,000 feet of gas and 1,000 bbls. of oil, total depth 3,062 feet. But it held up at this rate for only a short while as salt water broke in early.

The next significant well in Champagnolle was Keen & Woolf, Garrett & Modisette and Root Refineries' No. 1 J. M. Gregory, in the SE cor. NE SE, Section 10-17-14, a mile southwest of Eddy Jones and Ohio's line fight in Section 2. Although not listed as a completion until after the end of the year it was close enough to be included in a review of 1926 activities. It had been pumping and sanding up alternately since December 7, production coming from 4 feet of sand at 2,761-65 feet and late in the month was shut down. After standing for a week it was opened and started flowing at the rate of 2,500 bbls. of fluid, 45 per cent water, per day and at last report was flowing about 1,000 bbls. with no change in proportion of oil and water. December 16 Ohio Oil Co. completed the first dry gasser in the field, No. 1 Rich Pumphrey, in Section 2-17-14, gauging 25,000,000 feet from 3 feet of sand at 3,010-13 feet. It is in the NE cor. NE SE, of the section, offsetting Jones' No. 1 Crain. Later it started making 210 bbls. of oil and the gas fell off to about 10,000,000 feet. Trend of production is indicated southeast but extent and character of Champagnolle are things for the future to reveal.

Nevada County was the only other active district in Arkansas, completing 55 wells of which 9 were failures and 3 gassers with 12,000,000 feet open flow. The 43 producers had a total of 4,085 bbls. initially, all inside the defined areas.

Among wildcat completions, which were fairly plentiful in southern Arkansas during the year, two by Shaffer Oil & Refining Co., were of more than passing interest because of their preliminaries. Both were in Grant County where the company had conducted torsion balance surveys covering a wide strip of territory extending across the central part of the county and east into Jeffer-

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son County. On the strength of results of this survey they drilled No. 1 Youngblood in Section 34-4-13, and tested dry in paleozoic rock at 2,286 feet then moved 10 miles southeast and drilled No. 1 Long-Bell Lumber Co. in Section 36-5-12, where they found the same formation at 3,313 feet.

Richland Gas Field

While the Richland Parish gas field has been developed during 1927 its discovery belongs to 1926. Ever since the Monroe Field was found and developed the parishes east and south have been the scene of much wildcatting, many of these tests showing gas but it was not until Gulf Refining Co. got a blowout in Richland Parish that commercial gas was found in northeastern Louisiana outside of the now well-defined limits of the Monroe Field. The Gulf's well, No. 1 England Planting Co., in Section 17-17-5, blew in October 15, from 2,340 feet while drilling with no casing in the hole save surface string. To prevent a crater the 4-inch drill stem was cemented in the hole which was completed as a wildcat producer December 2, gauging 3,000,000 feet of gas, whereas the October blowout was estimated at 10,000,000 feet.

It was not until February 21, 1927, that the next successful well was completed in Richland, Palmer Corp.'s No. 1 Colvin, in Section 33-17-6, with 19,500,000 feet of gas, total depth, 2,432 feet, about 7 miles southeast of the Gulf well. Meanwhile a half dozen wells scattered through that and other localities in Richland had tested dry and it remained for the Palmer well and those immediately following to locate the main pool in Townships 15 and 16, Ranges 5 and 6, covering an area as defined at present (and by no means limited) 12 miles north and south and 9 miles east and west. Thirteen dry holes were drilled in the parish during the year only partially limiting production as in many cases they were so far from production that had they been successful, they would probably have been classed as opening new production on separate structures. It is probable that in the end Richland will be a collection of small areas each having its own characteristics, as in Monroe to some extent, but to date all production has been obtained from between 2,425 and 2,480 feet, penetration in the pay being fairly uniform, surface elevations all about the same and subsea elevations of the top of the pay showing no marked differences.

Richland will probably prove to be the most active district in Shreveport territory during the year with possibilities of some drilling below the gas.

Cartersville

Like Richland, the discovery well of the Cartersville gas district in northern Bossier belongs to 1926 but the field's development did not begin until early in 1927. Unlike Richland, however, commercial gas was known to exist in Cartersville two or three years before its development began. It took active competition between two rival concerns needing large reserves to supply their pipe lines to bring about the development of the pool.

Cartersville was "rediscovered" by Woodley & Collins' No. 1 Robertson in Section 22-23-12, completed December 7, 1926, with 40,000,000 feet of gas at a total depth of 3,091 feet, the producing horizon being the Woodbine which was a new pay in Bossier. This completion was followed December 13 with that of the Oil Field Corp.'s No. 2 Bollinger, in Section 38-23-11, making 10,000,000 feet of gas, total depth, 2,641 feet.

Developments followed more rapidly than was the case with Richland and to date Cartersville with scarcely more completions than Richland has furnished a larger initial open flow capacity. But the field is handicapped by a serious salt water problem which so far is entirely missing in Richland. Water encroachment became a serious menace early in the summer and it quickly became apparent that the southern corner of Township 23, Range 12, is the better part of the field and higher. Development to date takes in practically the entire south half of the township and extends over into Range 11.

Two or three wells have made some oil with the gas, but so far the field is distinctly a gas proposition with possibilities of oil being found in commercial quantities southeast, as two or three wildcats have indicated during the year.

Pleasant Hill

Ten or fifteen years of prospecting in Sabine Parish, during which a series of gas wells and oil wells oozing 4 or 5 bbls. of oil a day, scattered all over the parish, had been completed were climaxed February 3, when the Arkansas Fuel Oil Co. completed the Pleasant Hill, or Pelican discovery well, No. 1 Logan, in Section 33-10-12, making 600 bbls. of 41 gravity oil from 7 feet of sand at 3,203-10 feet. During the year approximately 40 wells have been completed in the, as yet, loosely-defined Pleasant Hill Pool, of which there were 30 producing an average of 28 bbls. each as of December 31. Their total initial production was 6,300 bbls., their present small average being accounted for by the fact that two or three days after completion they have fallen to a small fraction of their initial flow. Two wells were gassers with about 15,000,000 feet and five were failures.

Development of the pool has been in the hands of a few, the Arkansas Fuel Oil Co. and the Magnolia Petroleum Co. doing most of the drilling with a half dozen individuals drilling around the edge. It was one of these, Jack Moffatt, who accomplished the first major extension, completing No. 1 Moore in the NE cor. of Section 5-9-12, 2 miles southwest of the discovery well, with 288 bbls. initially at 3,284 feet, late in May. Future development of the pool will be governed entirely by whether the production crisis of 1927 is repeated in 1928.

The second completion in the field was a failure within a mile of the discovery well, Ohio Oil Co.'s No. 1 Cook, in Section 34-10-12, testing dry at 3,414 feet. Thereafter the limits of the pool and its possible extensions being indicated by the following wells:

Beckman & Freeman's No. 1 Logan, Section 28-10-12, 2,000,000 feet of gas at 3,272 feet.

Moffatt and others' No. 1 Moore, NE cor. Section 5-9-12, 288 bbls. of oil at 3,284 feet.

Woodley Petroleum Co.'s No. 1 Robinson, Section 33-10-12, dry at 3,330 feet.

Magnolia Petroleum Co.'s No. 1 Logan, Section 17-10-12, DeSoto Parish, 25 bbls. at 3,173 feet, an extension 4 to 5 miles northwest which was subsequently deepened, worked over and completed as a gasser.

Seip and others' No. 1 Robinson, Section 18-10-12, DeSoto Parish, 29 bbls. at 3,194 feet.

Helm & Jarman's No. 1 Joyner, Section 28-10-12, DeSoto Parish, salt water at 3,018 feet.

Arkansas Fuel Oil Co.'s No. 8 Logan, Section 33-10-12, 8,000,000 feet of gas at 3,352 feet.

H. I. Morgan's No. 1 Reese, Section 5-9-12, dry at 3,385 feet.

Moffatt and others' No. 2 Moore, Section 5-9-12, 1,600 bbls. at 3,254 feet.

Foster and others' No. 1 Nabors, Section 30-10-12, 5,000,000 feet of gas at 3,500 feet.

H. P. Tate's No. 1 Cook, Section 25-10-11, dry at 3,295 feet.

Sebastian and others' No. 1 D. H. Sebastian, Section 11-10-13, dry at 3,405 feet after testing for a small gasser and one or two oil shows.

These completions cover the period April to October inclusive, and have just about defined the pool on all sides save due west where S. P. Borden and others have No. 1 Logan, Section 36-10-12, shut down waiting orders after testing dry with drill stem tester at 3,195-3,212 feet.

Pine Island

With all due respect to the Gulf Refining Co.'s Ferry Lake lease in Caddo Parish which scored one of the most remarkable come backs in the history of oil—at least in this part of the country—the Pine Island district of Caddo Parish remains the most dependable and in its way the most remarkable of all pools in the Shreveport group. Since it

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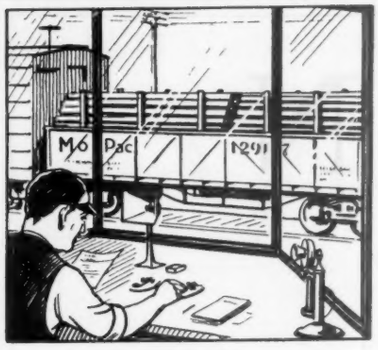

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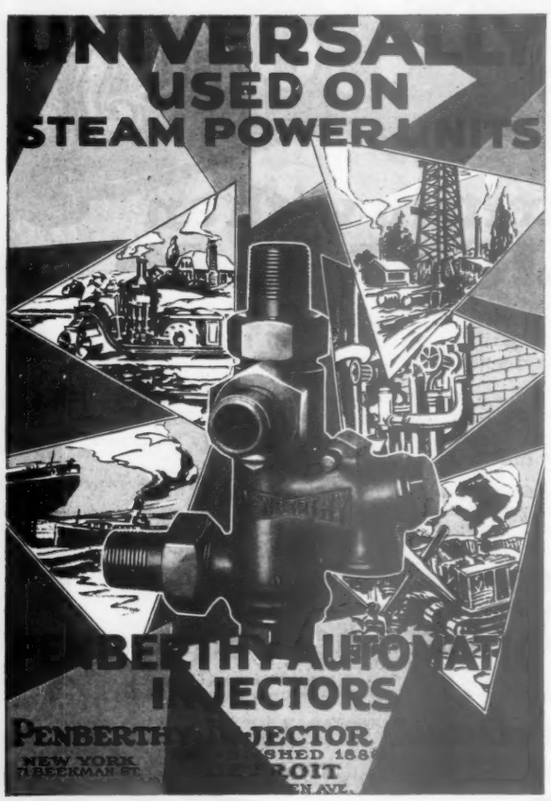

was first tapped at around 1,600 feet shortly before the war, it has never failed to respond and pay off on deeper drilling and the latter half of 1927 witnessed two such responses.

Dixie Oil Co., which has pioneered in all the deeper prospecting in that pool since it was first opened, paved the way in the first of these two, and Arkansas Fuel Oil Co. got the first producer in the second instance. Pine Island had been producing in the upper levels of the Trinity formations at around 3,000 to 3,100 feet for some time when the Dixie led the way in prospecting the 3,600-foot stuff in May when it completed No. 81 Robertshaw (or Dillon) in Section 13-21-15, as a 35,000,000-foot gas well at 3,647 feet. It was Haynes Brothers, however, who got the first producer in the new horizon which is Caddo's most valuable contribution to major developments during 1927. Haynes Brothers completed No. 1 Murray in Section 14-21-15, as a 20,000,000-foot gasser at 3,671 feet on June 21. The gas was exceedingly wet and they drilled 14 feet deeper testing again at 3,684 feet on July 4 when the well came in flowing at the rate of 16,000 bbls. of 43 gravity oil. It filled all available tankage in an hour and was shut in while more was being built and when opened the next day flowed 6,500 bbls. through two 1-inch chokes.

Of course development of the new pay on a major scale followed at once. It differed in some respect, however, from the average, since all the surrounding acreage was already under lease by a few major companies and in many cases development was a question of deepening old producers in shallower horizons. Also, the pool began to display characteristics operators in this territory have never had to contend with before and which still have them guessing. This feature lies in the effect that practically every completion has on all those around it in the new pay. When a new well was brought in some of these others increased their production while others fell like a plummet and later came back. Frequently the new well itself dropped off to an alarming extent in a few hours, sometimes staying there and in other instances climbing back up to meet and even pass its initial flow. Distance between wells does not seem to have had anything to do with the effect these new producers have on the older wells surrounding and to date there is no satisfactory explanation of the reasons. As gas and salt water is present with production in most of the new deep wells practically all of them are produced through separators and installation of natural gasoline plants has soothed the Conservation Department's anxiety concerning the waste of gas. Quick depreciation is also a more or less general characteristic of these completions, which has resulted in Pine Island being the location for more gas and air lift installations than elsewhere in this territory, results so far having more than met expectations.

The pool's second development of the year came in the last three months when a still lower horizon, at 3,900-4,000 feet paid off. Arkansas Fuel Oil Co. was the first to get production in this lower horizon, No. 1 Huckaby, in Section 14-21-15, testing 5,000,000 feet of gas and 150 bbls. of oil at 3,906 feet on October 12. Following it 10 wells were completed in the 3,900-foot stuff up to the end of the year with development of the 3,600-foot wells continuing. As these deeper wells are not quite so eccentric in their behavior as those in the 3,600-foot levels, however, there is a growing tendency to not stop at the shallower depth and most of the work in this area during the new year, at least the first half of it, will probably be to that end—unless someone comes along and finds new pay still lower. Three wells were drilling below 4,000 feet at the end of the year, one of which has since been abandoned as a junked hole.

Until the last two or three weeks of the year production in both these new lower horizons had been confined to Section 14-21-15, but toward the last it was extended south into Section 23 and west into Section 15, but previous dry holes and salt water wells apparently defined it on the north and east before development began. The course of development since the Dixie's "discovery" well may be traced through the following key completions:

Dixie Oil Co.'s No. 81 Robertshaw, Section 13-21-15, 35,000,000 feet of gas at 3,647 feet, May 12.

Haynes Brothers' No. 1 Murray, Section 14-21-15, 20,000,000 feet of gas at 3,671 feet, June 21; 6,500 bbls. of oil and 20,000,000 feet of gas at 3,685 feet, July 4.

Dixie Oil Co.'s No. 8 Clark, Section 14-21-15, 1,000 bbls. of oil at 3,800 feet, July 23.

The Texas Company's No. 5 J. P. Herndon, Section 14-21-15, 4,000 bbls. of oil and 15,000,000 feet of gas at 3,677 feet, August 7.

Dixie Oil Co.'s No. 5-B Files & Mabry, Section 14-21-15, 600 bbls. of oil at 3,781 feet, August 15.

Gulf Refining Co.'s No. 14 Tyson, Section 14-21-15, 220 bbls. of oil at 3,762 feet, September 1.

Arkansas Fuel Oil Co.'s No. 1 Huckaby, Section 14-21-15, 5,000,000 feet of gas and 150 bbls. of oil at 3,906 feet, October 12.

Dixie Oil Co.'s No. 89 Dillon, Section 14-21-15, 2,000,000 feet of gas and 400 bbls. of oil at 3,809 feet, October 22.

Dixie Oil Co.'s No. 2-A Noel, Section 13-21-15, salt water at 3,968 feet, October 26.

Bethany Oil & Gas Co.'s No. 1 Herndon, Section 15-21-15, salt water at 3,948 feet, October 26.

Haynes Brothers' No. 2 Murray, Section 14-21-15, 400 bbls. of oil at 3,920 feet, October 26.

Pittsburgh Oil & Development Co.'s No. 1 Herndon, Section 14-21-15, salt water at 3,948 feet, November 3. (Being deepened.)

The Texas Company's No. 6 A. Herndon, Section 14-21-15, 3,000,000 feet of gas and 500 bbls. of oil at 3,935 feet, November 10.

Arkansas Fuel Oil Co.'s No. 2 Beshara, Section 23-21-15, 400 bbls. of oil at 3,900 feet, November 11.

The Texas Company's No. 49 Caddo Mineral Lands, Section 23-21-15, 200 bbls. of oil at 3,909 feet, November 15.

Magnolia Petroleum Co.'s No. 21 Robertshaw, Section 23-21-15, 600 bbls. of oil at 3,930 feet, December 17.

Dixie Oil Co.'s No. 89 Dillon, Section 14-21-15, 5,000,000 feet of gas and 900 bbls. of oil at 3,997 feet, November 29 (second completion).

Gulf Refining Co.'s No. 10 Herndon, Section 15-21-15, 32 bbls. of oil at 3,921 feet, December 26.

Greenwood Gas District

The Greenwood gas district of central west Caddo Parish loomed during the first half of the year as a locality where there would be considerable development. It was not entirely new, as a couple of years ago gas had been found outside the Louisiana end of the Waskom (Harrison County, Texas) Field. Thigpen and Herold of Shreveport held a block extending almost from Shreveport on the east to the state line 16 miles west of town, and what they did not hold as individuals they held as State Line Oil & Gas Co. under which title they had been operating in Waskom since its discovery.

They began developing in January, their activities as measured by completions increasing until the peak was reached with 16 completions. In that month they sold out to the Moody-Seagraves interests who had launched a pipe line project with Houston and Beaumont as the objectives, for $450,000. The Greenwood Production Co. was formed as the producing member of the Dixie-Gulf organization, organized to build the line, Thigpen and Herold having a half interest in it and since then Greenwood development has for the most part been by the Greenwood Production Co. The Moody-Seagraves folks also bought The Texas Company's half interest in the Reserve Natural Gas Co. for $1,500,000, thus getting a line into the northern Bossier and Webster Parish Fields and

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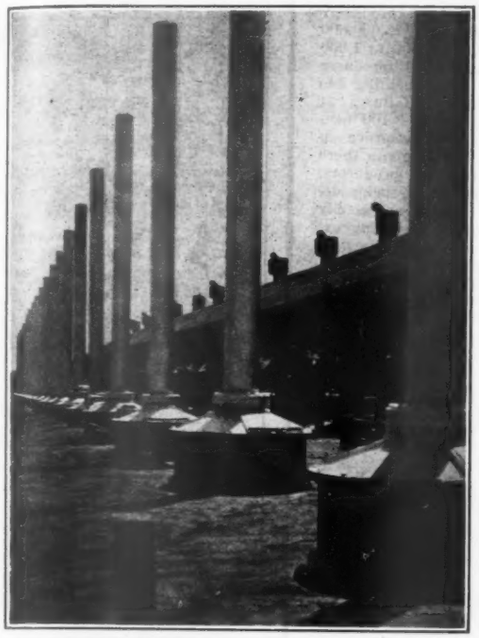

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also into the Bethany gas field of Panola County, Texas.

Between Thigpen and Herold and the Greenwood Production Co. with one or two other individuals, the Greenwood district has had 49 completions during the year, 27 failures and 22 producers with an initial open flow of 173,000,000 feet of gas. Gas is found at 900 to 1,000 feet and one well was a small producer at 2,813 feet, though deeper drilling has uniformly resulted only in failures at depths ranging from 1,200 to 3,100 feet. Also, the shallow sand did not prove up to expectations and in the long run there have been more failures than producers, though in so large a block as is being developed these failures do not necessarily condemn the field which, comparing extent of territory and completions to date has scarcely been touched.

NORTH LOUISIANA
Completions by Parishes

Parish—	Comp.	Prod.	Dry	*Gas
Bienville	4	0	4	0
Bossier	64	259	15	30
Caddo	259	27,728	79	41
Caldwell	5	0	5	0
Catahoula	6	0	6	0
Claiborne	13	16	10	0
DeSoto	22	512	8	2
East Carroll	2	0	2	0
Franklin	5	0	5	0
Grant	36	735	25	0
Jackson	6	0	6	0
LaSalle	58	3,662	23	2
Madison	2	0	2	0
Monroe district	76	0	19	57
Natchitoches	21	0	21	0
Rapides	7	0	7	0
Red River	13	378	4	1
Richland	36	0	13	23
Sabine	40	6,412	14	3
Webster	38	512	11	17
West Carroll	2	0	2	0
Winn	19	0	18	1
Total, 1927	726	40,223	297	177
Total, 1926	1,046	82,021	321	118
Difference	320	41,798	24	59

*Gas production 2,444,572,481 feet initial open flow.

Gas production: Monroe district, 621,514,400 feet; Bossier, 576,185,125 feet; Richland, 554,266,086 feet; Caddo, 450,150,000 feet; Webster, 201,259,890 feet; miscellaneous Louisiana (Sabine, LaSalle, DeSoto and Red River), 17,187,000 feet initial open flow.

Completions by Months

Month—	Comp.	Prod.	Dry	*Gas
January	54	1,752	19	7
February	57	1,657	23	8
March	72	2,879	39	12
April	66	3,409	29	11
May	51	869	24	10
June	72	1,863	32	15
July	47	10,189	15	10
August	59	6,758	20	13
September	66	3,954	29	21
October	55	968	22	26
November	63	4,382	26	16
December	64	1,543	19	28
Total	726	40,223	297	177

ARKANSAS
Completions by Counties

County—	Comp.	Prod.	Dry	*Gas
Ashley	2	0	2	0
Bradley	3	0	3	0
Calhoun	2	0	2	0
Clark	2	0	2	0
Columbia	15	0	15	0
Franklin	1	0	0	1
Grant	2	0	2	0
Hempstead	3	0	3	0
Lafayette	3	0	3	0
Lincoln	1	0	1	0
Little River	2	0	2	0
Miller	4	0	4	0
Nevada	55	4,085	9	3
Ouachita	73	2,452	22	9
Union	191	8,050	73	33
Total, 1927	359	14,587	143	46
Total, 1926	1,028	74,224	226	65
Difference	669	59,637	83	19

*Gas production: Nevada County, 12,000,000 feet; Ouachita, 35,000,000 feet; Union, 516,045,000 feet; Franklin, 7,000,000 feet initial open flow.

Completions by Months

Month—	Comp.	Prod.	Dry	*Gas
January	32	517	18	2
February	29	756	7	8
March	47	1,309	17	6
April	34	2,171	11	3
May	36	1,176	14	6
June	33	1,339	15	1
July	20	1,315	6	1
August	31	1,825	12	4
September	21	1,704	7	2
October	27	1,056	12	2
November	27	1,478	15	4
December	22	571	9	4
Total	359	14,587	143	46

*Gas production, 570,045,000 feet, initial open flow.

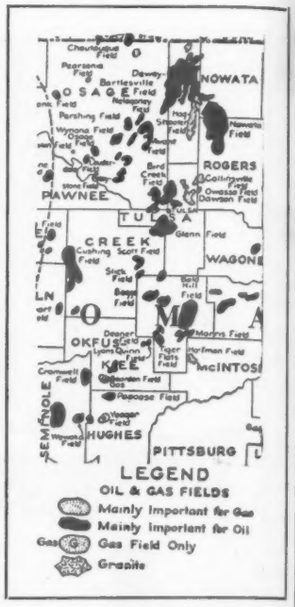
EAST TEXAS
Completions by Counties

Month—	Comp.	Prod.	Dry	*Gas
Cass	2	0	2	0
Harrison	60	20	10	50
Marion	4	157	1	0
Panola	26	172	6	12
Rusk	1	0	1	0
Total	93	349	20	62

*Gas production: Harrison, 338,200,000 feet; Panola, 21,500,000 feet.

Completions by Months

	Comp.	Prod.	Dry	*Gas
January	2	0	1	1
February	4	0	2	2



A small partial reproduction of a full page map which appeared in a previous issue of The Oil and Gas Journal.

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Breckenridge, Tex.. Casper, Wyo
Shelby, Mont. Owensboro, Ky.

March	6	38	2	3
April	5	5	2	2
May	2	106	0	1
June	7	16	0	6
July	6	30	3	2
August	12	67	2	8
September	11	50	0	10
October	7	0	0	7
November	15	9	3	11
December	16	34	4	9
Total	93	349	20	62

*Gas production 356,062,000 feet, initial open flow.

DISAPPOINTMENTS IN EAST CENTRAL TEXAS

(Continued from Page 160)

United States. The combined productive area of the seven pools in Limestone, Freestone and Navarro Counties does not exceed 7,800 acres, yet it has produced 217,013,206 bbls. up to the close of 1927, or 27,809 bbls. per acre.

The acreage and total of the principal pools in the area has been as follows:

The Mexia Pool, in Limestone County, was opened by the Humphreys Petroleum Co. on November 20, 1920. It reached a peak of 176,001 bbls. a day on February 12, 1922. The field has produced 84,038,338 bbls. from 3,704 acres. Average per acre, 22,639 bbls.

Currie Pool, Limestone County, opened December 14, 1921, reached a peak of 13,165 bbls. on July 24, 1922. It has produced 5,601,933 bbls. from 375 acres. Average production per acre, 14,939 bbls.

Powell, Navarro County, was opened January 1, 1923, by the Corsicana Drilling Co., and reached a peak estimated at 354,893 bbls. on November 14, 1923. This figure is disputed as a result of a later canvass of the companies in the field, and the actual peak is said to have been 319,921 bbls. on November 14. All of the big wells in the field had been pinched in, but on the day in question they were opened wide. After the pent up oil and gas had expended their greatest force the output quickly subsided. The field has actually produced 97,313,149 bbls. from 2,612 acres, or an average of 37,256 bbls. per acre, a remarkable record when compared to some other great fields.

The Wortham Pool, in Limestone and Freestone Counties, was opened by the Boyd Oil Co. (Humphreys interests) November 22, 1924. It reached a peak of 165,516 bbls. (estimated) on January 15, 1925. The pool had produced 20,750,320 bbls. from 715 acres, or an average of 29,021 bbls. per acre.

The Richland Pool, in Navarro County, was opened by McDonald and others February 8, 1924. Its peak production was 22,541 bbls. in September, 1924. It has produced 6,139,415 bbls. from 240 acres, or an average of 22,541 bbls. per acre.

The average production per acre of the Burbank Field in Oklahoma has been about 7,300 bbls., while that of the Seminole Pool, also in Oklahoma, has been about 13,100 bbls. and may not ever reach 16,000 bbls. from the area in question. The famous Cushing Field in Oklahoma has produced in the neighborhood of 9,000 bbls. per acre in 15 years. The very large per acre production of the Mexia fault pools is emphasized when compared with the above three and other notable fields.

EAST CENTRAL TEXAS
Summary of Completed Work in 1927

County—	Comp.	Prod.	Dry	Gas
Limestone	36	4,656	20	2
Anderson	10	.....	10	0
Ellis	1	.....	1	0
Cherokee	10	200	8	1
Franklin	2	.....	2	0
Freestone	4	.....	4	0
Henderson	4	.....	4	0
Kaufman	3	.....	3	0
Navarro	13	.....	13	0
Fannin	2	.....	2	0
Falls	1	.....	1	0
Smith	2	.....	2	0
Hunt	1	.....	1	0
Total 1927	89	4,856	72	3
Total 1926	175	62,046	88	4
Difference	86	57,190	16	1

Summary by Months

	Comp	Prod.	Dry	Gas
January	9	1,800	7	1
February	9	.....	9	0
March	1	.....	1	0
April	8	.....	8	0
May	6	.....	6	0
June	8	.....	8	0
July	6	200	4	1
August	8	.....	8	0
September	5	1,575	1	0

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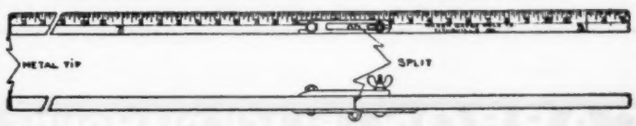

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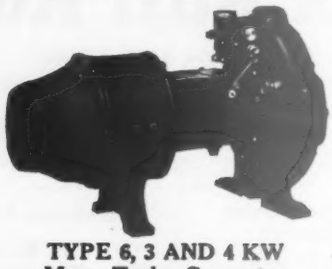

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October	13	591	10	0
November	10	450	5	1
December	6	240	5	0
Total 1927	89	4,856	72	3
Total 1926	175	62,046	88	4
Total 1925	683	368,725	208	19
Total 1924	444	275,545	158	5
Total 1923	771	1,619,527	133	2
Total 1922	864	750,770	300	16

CONCRETE TANKS FOR W. TEXAS

FORT WORTH, Tex., Feb. 4.—Roxana Petroleum Corp. has started excavation work for two 1,000,000-bbl. underground concrete tanks to be built in West Texas. One tank will be built at McCamey. The other tank will be built either in Hendrick, Winkler County, or in Ward County, a short distance south of the Hendricks Field.

NEW MEXICO LEASE BILL

WASHINGTON, D. C., Feb. 4.—The Senate has passed a joint resolution granting consent to an amendment of the constitution of the State of New Mexico providing a method of executing leases and other contracts for the development and production of any and all minerals on lands granted or confirmed to that State by the act of June 20, 1910.

VISITS SOUTH AMERICA

H. E. Brandli, vice president and general manager of the Carson Petroleum Co. and the Petroleum Import & Export Corp., sailed January 28 on the steamer American Legion for South America. Mr. Brandli's trip, to cover several months, will enable him to visit all of the South American republics where the companies have representatives and export interests.

LEGAL

SALE OF OIL AND GAS LEASES
DEPARTMENT OF THE INTERIOR
Shreveport, Louisiana.

Notice is hereby given that the following described lands in eight units in the known geologic structure of the Monroe Gas Field, Louisiana, are offered for lease under Section 17 of the act of February 25, 1920 (41 Stat., 437), at the customary sliding scale of 12½ to 33⅓ per cent of the quantity or value of the oil produced, of 12½ to 16⅔ per cent of the value of the gas produced and of 16⅔ per cent of the value of the natural-gas gasoline produced from each unit in accordance with the royalty schedule in the regular lease form, and the rental as required by Section 17 of the said act:

Unit No. 1.
T. 18 N., R. 4 E., Sec. 24, Lot 3, 9.24 acres.
Unit No. 2.
T. 19 N., R. 4 E., Sec. 3, NE¼ of NE¼, 40.00 acres.
Unit No. 3.
T. 19 N., R. 4 E., Sec. 30, Lots 1, 2, SE¼ NW¼, 106.70 acres.
Unit No. 4.
T. 19 N., R. 5 E., Sec. 10, SE¼ of SE¼, 39.82 acres.
T. 20 N., R. 5 E., Sec. 34, SE¼ of SE¼, 40.07 acres.
Unit No. 5.
T. 19 N., R. 5 E., Sec. 18, S½ of NW¼, Sec. 20, SW¼ of NW¼, Sec. 30, SW¼ of SE¼, 160.47 acres.
Unit No. 6.
T. 20 N., R. 3 E., Sec. 36, Lot 4, 15.80 acres.
T. 20 N., R. 4 E., Sec. 7, NW¼ of SW¼, 39.99 acres.
Unit No. 7.
T. 20 N., R. 4 E., Sec. 1, SE¼ of NW¼, Sec. 13, NW¼ of NE¼, 74.32 acres.
Unit No. 8.
T. 21 N., R. 5 E., Sec. 20, Lot 1; Sec. 29, NE¼ of SW¼; Sec. 33, Lots 2, 3, 4, 124.34 acres; all Louisiana Meridian, Louisiana, total, 651.26 acres.

The units are to be offered separately and are to be so considered as a basis for the payment of royalty, but any lessee may acquire two or more of the units in which the combined acreage does not exceed 640 acres.

The lands are offered for lease subject to the drilling of offset wells by the lessee first on lands adjacent to tracts on which commercial production of gas has been demonstrated, such drilling operations to be initiated within ninety days after the delivery of the executed lease, each succeeding well thereafter as required to be drilled by the terms of the lease shall be spudded in within ninety days of the completion of the drilling well, all drilling operations to be in conformity with the laws of the State of Louisiana and to be continuously and diligently prosecuted in accordance with the Federal oil and gas regulations.

Said leases will be offered for sale by public auction at the Federal Court Room, Shreveport, Louisiana, at 10 a. m., on February 27, 1928. The successful bidder must deposit on the date of sale, with the officer in charge of the sale certified check on a solvent bank, or cash, for one-fifth of the amount bid by him, and file the showing of qualifications to receive a lease required by Sec. 15 of said regulations.

Bidders are warned against violations of the provisions of Sec. 59, U. S. Criminal Code, approved March 4, 1909, prohibiting unlawful combination or intimidation of bidders.

The right is reserved to reject any and all bids in the discretion of the Secretary of the Interior.

JAMES W. NEAL,
Officer in Charge.

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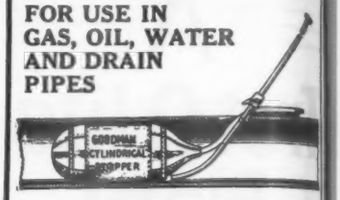

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Oklahoma-Kansas and Eastern Pipe Line Report

OKLAHOMA-KANSAS

Pipe Line Statement for November

Runs

	Month	Dy. Av.
*Prairie Pipe Line Co.	4,470,000	149,000
Gulf Pipe Line Co.	1,620,453	54,015
Texas Pipe Line Co.	1,314,796	43,826
Empire Pipe Line Co.	1,344,761	44,825
Magnolia Pipe Line Co.	2,045,554	68,185
Cosden Pipe Line Co.	1,059,003	35,300
Sinclair Pipe Line Co.	2,752,710	91,757
Oklahoma Pipe Line Co.	3,871,727	129,057
*Other lines	7,918,273	263,943
Total November	26,397,277	879,908
Total October	27,729,663	894,506
Difference	1,332,386	14,598

Shipments

*Prairie Pipe Line Co.	5,469,059	182,902
Gulf Pipe Line Co.	1,367,498	45,583
Texas Pipe Line Co.	974,190	32,473
Empire Pipe Line Co.	1,250,114	41,670
Magnolia Pipe Line Co.	1,837,349	61,245
Cosden Pipe Line Co.	867,939	28,931
†Sinclair Pipe Line Co.	2,938,888	97,963
Oklahoma Pipe Line Co.	3,629,478	120,982
*Other lines	7,590,522	253,018
Total November	25,916,037	863,867
Total October	26,128,011	842,838
Difference	211,974	21,029

Stocks

*Prairie Oil & Gas Co.	31,700,000
*Prairie Pipe Line Co.	2,500,000
Gulf Pipe Line & Gypsy Oil Co.	10,126,654
The Texas Company	6,513,789
Empire Pipe Line Co.	4,577,545
Cosden Pipe Line Co.	3,447,632
*Sinclair Crude Oil Pur. Co.	20,550,000
Magnolia Petroleum Co.	6,946,641
Oklahoma Pipe Line Co.	2,970,487
Carter Oil Co.	15,959,813
*Other lines	10,660,000
Total November	114,952,561
Total October	111,418,650
Difference	3,433,911

*Estimated. †Prairie shipments include Texas crude oil and Sinclair shipments include Texas and Wyoming crude oil.

Note: Stocks do not include approximately 5,200,000 bbls. of crude oil held in storage on private tank farms and leases and 2,000,000 bbls. of Texas Panhandle crude oil in storage in Oklahoma and Kansas.

EASTERN PIPE LINES

Runs from Wells

In the following table will be found the regular receipts from wells by various pipe lines in New York, Pennsylvania, West Virginia, Ohio, Kentucky and Indiana for November and December:

	Nov., 1927	Dec., 1927
Nat. Transit	138,601.66	135,509.47
S. W. Pa. P. L.	85,325.67	82,623.87
Eureka P. L.	364,643.37	357,137.03
Buckeye P. L. (Macksb'g)	314,900.41	317,414.13
Buckeye P. L. Cleve.)	12,030.90	11,590.15
Buckeye P. L. (Lima, etc.)	105,956.52	104,528.03
Indiana P. L.	7,189.17	7,062.60
Cum'land P. L.	236,613.60	226,646.29
N. Y. Transit	21,173.39	22,279.13
Tidewater P. L.	182,622.58	184,686.44
Pure Oil	152,816.95	100,041.39
Emery P. L.	56,468.37	56,312.05
Paragon Dev.	27,069.78	25,971.71
Stoll Oil Ref.	12,843.77	12,870.98
Total	1,718,256.14	1,645,673.31
Daily average	57,275.20	53,086.82

Note: Indian Refining Co. also reported other receipts of 307,806.71 bbls. Paragon Refining Co. had other receipts of 152,908.53 bbls. Paragon Development had other receipts of 1,398.77 bbls.

Petroleum Deliveries

The following tables exhibit the shipments or regular deliveries of various pipe lines in New York, Pennsylvania, West Virginia, Ohio, Kentucky and Indiana for November and December:

	Nov., 1927	Dec., 1927
Nat. Transit	319,056.21	423,663.76
S. W. Pa. P. L.	375,867.86	374,669.37
Eureka P. L.	192,438.78	194,894.42
Buckeye P. L. (Macksb'g)	152,463.55	134,693.87
Buckeye P. L. (Cleve.)	969.42	1,211.85
Buckeye P. L. (Lima, etc.)	1,013,132.41	$46,994.35
Indiana P. L.	1,116,002.96	1,153,206.72
Cum'land P. L.	145,443.98	144,182.95
N. Y. Transit	175,265.57	141,202.60
Northern P. L.	178,350.74	176,227.13
Tidewater P. L.	111,596.80	155,569.28
Pure Oil	177,134.58	123,788.25
Emery P. L.	54,750.52	56,494.34
Paragon Ref.	168,246.24	150,525.40
Indian Ref.	319,181.35	363,972.95
Paragon Dev.	29,362.95	26,229.67
Total	4,529,263.92	4,479,636.91
Daily average	150,975.46	144,504.42

Gross Stocks

The gross stocks held by various pipe lines in the oil-producing sections of New York, Pennsylvania, West Virginia, Ohio, Indiana and Kentucky at the close of November and December:

	Nov., 1927	Dec., 1927
Nat. Transit	1,108,601.66	1,187,950.33
S. W. Pa. P. L.	715,534.91	739,481.15
Eureka P. L.	1,729,737.61	1,702,403.70
Buckeye P. L. (Macksb'g)	396,287.92	435,355.19
Buckeye P. L. (Cleve.)	50,691.02	41,685.89
Buckeye P. L. (Lima, etc.)	4,695,838.16	4,943,834.32
Indian P. L.	647,290.51	644,480.85
Cum'land P. L.	594,822.46	614,861.45
Southern P. L.	386,756.90	409,639.89
N. Y. Transit	610,190.02	609,588.23
Northern P. L.	547,199.31	537,115.66
Pure Oil	394,386.96	369,284.08
Emery P. L.	12,543.82	1,686.27
Paragon Ref.	13,179.46	15,272.42
Indian Ref.	129,403.32	71,648.15
Paragon Dev.	7,276.88	6,009.77
Total	11,939,740.93	12,340,297.25
Decrease	107,919.71	
Increase		400,556.32

Grades of Oil

The following table shows the amount of the different grades of oil held by the Eastern pipe lines at the close of November and December, showing the gross stocks of the above fields:

	Nov., 1927	Dec., 1927
Penn'a	4,076,710.10	4,225,582.93
Lima	1,177,864.75	1,196,691.27
Kentucky	1,089,857.44	1,009,560.04
Mid-Continent	5,519,125.98	5,855,777.40
Illinois	76,182.66	52,685.61
Total	11,939,740.93	12,340,297.25

Daily Average Runs

The following table shows the daily average runs of the Pennsylvania, Lima and Kentucky oil fields for the past four years:

	1924	1925	1926	1927
Jan.	62,638	56,831	55,630	56,209
Feb.	68,023	60,606	60,394	61,298
Mar.	68,721	60,575	61,644	63,247
April	71,058	63,062	63,019	60,337
May	63,942	59,217	60,580	60,284
June	63,230	61,270	64,131	62,757
July	64,208	62,639	63,206	58,574
Aug.	59,942	59,696	61,815	60,870
Sept.	62,930	62,510	64,639	60,286
Oct.	64,976	60,995	62,704	57,499
Nov.	56,282	59,350	61,774	57,275
Dec.	55,814	57,974	58,755	53,089

Daily Average Shipments

The following table gives daily average shipments from the Pennsylvania, Lima and other fields for the past four years:

	1924	1925	1926	1927
Jan.	145,518	157,889	156,056	141,227
Feb.	148,732	160,863	159,488	138,534
Mar.	147,093	154,591	160,239	133,777
April	147,611	151,429	152,371	140,227
May	134,997	146,995	160,998	144,394
June	143,010	149,467	160,257	149,772
July	124,187	161,338	160,005	151,350
Aug.	123,120	161,730	161,929	138,653
Sept.	127,325	156,719	158,915	144,213
Oct.	123,170	145,388	161,132	147,036
Nov.	124,400	143,582	152,668	150,976
Dec.	151,392	150,162	136,428	144,504

Gross Stocks

In the following table will be found the gross stocks of the various lines of the Pennsylvania, Lima and Kentucky oil fields, including oil received from other lines at the close of each month for the past three years:

	1925	1926	1927
Jan.	11,353,276	9,859,170	9,718,091
Feb.	11,192,924	9,679,354	10,119,163
Mar.	11,158,297	9,438,292	10,794,044
April	11,062,082	9,805,851	11,112,295
May	11,207,562	9,531,757	11,359,331
June	11,093,796	9,585,904	11,493,673
July	11,067,458	9,734,587	11,483,133
Aug.	10,974,481	9,168,947	11,989,115
Sept.	10,781,753	9,423,732	12,313,710
Oct.	11,086,850	9,269,806	12,047,661
Nov.	11,068,158	9,257,667	11,939,740
Dec.	10,458,445	9,454,513	12,340,297

Franklin Pipe Line Co.

The following table exhibits the condition of the Franklin Pipe Line at the close of business for the months named and not counted in the stocks and averages reported above:

	Runs	Shipments	Stocks
1926—			
Nov.	2,810.60	1,664.55	15,817.31
Dec.	2,847.52	5,561.11	13,103.73
1927—			
Jan.	2,641.54	1,470.42	14,274.84
Feb.	2,764.30	1,082.82	15,956.32
Mar.	2,587.20	1,878.56	16,664.96
April	2,834.23	1,512.65	17,986.54
May	2,768.40	539.29	20,215.73
June	2,946.29	664.49	22,497.61
July	3,153.39	1,276.61	24,374.39
Aug.	3,057.89	3,713.11	18,719.17
Sept.	3,309.56	2,656.48	19,372.25
Oct.	2,801.32	1,226.99	20,946.61
Nov.	2,746.50	2,230.53	21,472.56

The Illinois Field

The following table gives the report of the Illinois Pipe Line Co. in Illinois:

Gross stocks, Jan. 1	1,966,012.01
Other receipts	550,821.33
Runs from wells	187,803.16
Regular deliveries	362,391.64
Other deliveries	511,338.11

The amount of Illinois oil run by the Tide Water Pipe Co. in December was 26,498.81 bbls. and deliveries were 44,784.53 bbls. Adding these figures to those of the Illinois Pipe Line Co. makes the runs and deliveries as follows:

1926—	Runs	Deliveries
Dec.	668,909.58	587,947.81
1927—		
January	621,421.03	530,088.91
February	595,831.16	476,956.71
March	727,593.91	554,947.43
April	592,226.97	444,818.49
May	728,759.40	543,192.01
June	640,976.85	532,317.78
July	613,901.30	484,902.53
August	651,276.40	529,331.37
September	619,589.49	433,212.49
October	601,099.25	405,387.58
November	605,521.14	415,186.46
December	577,221.25	387,176.01

Tide Water Pipe Co., Ltd., also delivered in December 111,513.09 bbls. of Oklahoma oil.

AVERAGE DAILY RECEIPTS OF CALIFORNIA OIL AT ATLANTIC AND GULF COAST PORTS

Average bbls. per day—	ATLANTIC PORTS						GULF COAST PORTS					Total All Ports
	Baltimore	Boston	New York	Philadelphia	Others	Total	Galveston	New Orleans Baton Rouge	Port Arthur Sabine Pass	Tampa	Total	
July	13,484	27,290	33,065	9,129	5,451	78,419	.....	.....	.....	.....	968	79,387
August	18,516	3,066	48,129	17,323	26,000	113,032	.....	.....	.....	.....	.....	113,032
September	22,033	6,967	51,400	14,567	19,523	115,500	.....	.....	.....	.....	.....	115,500
October	30,936	4,355	47,968	14,129	14,387	101,774	.....	.....	.....	.....	.....	101,774
November	9,433	2,833	23,033	15,166	4,933	55,400	.....	.....	.....	.....	.....	55,400

AVERAGE DAILY IMPORTS OF PETROLEUM AT PRINCIPAL UNITED STATES PORTS

Average bbls. per day—	ATLANTIC PORTS						GULF COAST PORTS					Total All Ports
	Baltimore	Boston	New York	Philadelphia	Others	Total	Galveston	New Orleans Baton Rouge	Port Arthur Sabine Pass	Tampa	Total	
July	22,226	10,387	80,193	7,193	38,710	158,710	2,226	25,065	806	.....	29,096	187,806
August	19,323	9,032	80,903	14,258	31,821	155,387	2,097	21,161	.....	.....	23,258	178,645
September	28,033	11,433	85,500	12,800	37,700	175,467	5,667	19,233	.....	3,600	28,500	203,967
October	26,064	13,097	79,355	3,828	34,097	156,451	1,613	19,323	806	1,871	23,612	180,064
November	35,233	8,033	84,533	30,100	27,067	184,967	4,000	26,500	2,000	1,667	34,167	219,133

GROSS PRODUCTION OF THE UNITED STATES FOR 12 MONTHS

(IN BARRELS)

1926—		California	Oklahoma	Texas	Kansas	Arkansas	Louisiana	Rocky Mountains	Eastern Fields	Total
December:	Month	20,276,960	17,882,908	19,753,591	3,654,156	4,266,189	2,018,734	2,658,301	3,313,000	73,823,839
	Daily average	654,095	576,868	637,212	117,876	137,619	65,120	85,752	106,871	2,381,414
1927—										
January:	Month	20,184,872	19,035,426	18,605,363	3,769,879	4,076,469	1,906,570	2,620,303	3,332,500	73,530,332
	Daily average	651,125	614,046	600,173	121,609	131,499	61,470	84,203	107,500	2,371,940
February:	Month	17,982,711	19,752,348	16,483,712	3,352,407	3,674,256	1,784,104	2,386,136	3,007,200	68,321,542
	Daily average	642,240	705,441	588,704	119,717	127,652	63,718	85,183	107,400	2,440,057
March:	Month	19,835,724	22,480,921	18,233,617	3,675,143	3,853,920	2,032,982	2,476,798	3,335,800	75,923,906
	Daily average	639,862	725,191	588,149	118,553	124,320	65,580	79,574	105,100	2,449,158
April:	Month	19,493,826	22,208,130	17,801,140	3,516,930	3,378,240	1,994,330	2,615,770	3,474,000	74,482,366
	Daily average	648,370	740,271	593,371	117,231	112,608	66,491	87,193	115,800	2,482,746
May:	Month	19,506,064	23,258,463	19,639,083	3,704,314	3,493,669	1,935,178	2,742,588	3,467,000	77,646,340
	Daily average	629,228	750,273	630,293	119,494	112,699	62,426	88,471	111,839	2,504,721
June:	Month	19,181,442	22,830,330	18,299,810	3,437,580	3,365,760	1,880,820	2,692,437	3,330,000	75,018,179
	Daily average	639,381	761,011	613,327	114,586	112,192	62,694	86,414	111,000	2,500,606
July:	Month	19,319,021	26,522,546	17,607,194	3,454,082	3,406,683	2,279,405	2,635,607	3,373,000	78,597,558
	Daily average	623,194	855,566	567,974	111,422	109,893	73,529	85,020	198,806	2,535,401
August:	Month	19,279,131	26,283,350	17,715,329	3,424,570	3,342,600	2,190,905	2,630,065	3,608,400	78,283,250
	Daily average	621,907	847,850	571,459	110,470	104,600	70,964	81,615	116,400	2,526,300
September:	Month	19,064,500	24,111,660	18,822,800	3,342,240	3,032,970	2,027,070	2,228,609	3,465,000	75,594,849
	Daily average	635,483	803,722	610,760	111,408	101,099	67,569	74,520	115,500	2,516,328
October:	Month	19,448,893	24,223,803	19,203,136	3,609,169	3,117,300	2,056,159	2,270,905	3,666,000	77,394,365
	Daily average	627,384	781,413	619,456	113,199	100,555	66,329	73,255	115,000	2,496,601
November:	Month	18,516,467	23,083,380	18,636,390	3,312,870	2,906,760	1,947,660	2,274,870	3,330,000	74,008,397
	Daily average	617,216	769,446	621,213	110,429	96,892	64,922	75,829	111,000	2,466,947
	Total 12 months	232,089,590	271,673,865	220,300,045	42,153,009	41,714,816	24,061,914	30,041,288	40,600,500	902,635,027
	Daily average	635,862	744,312	603,618	114,488	114,287	65,923	85,045	111,234	2,472,973

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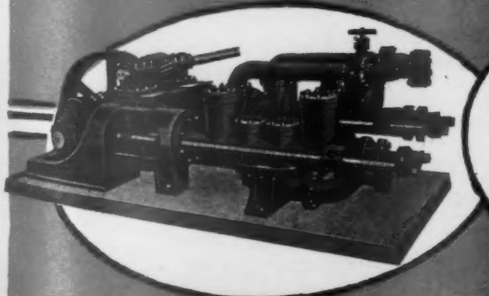

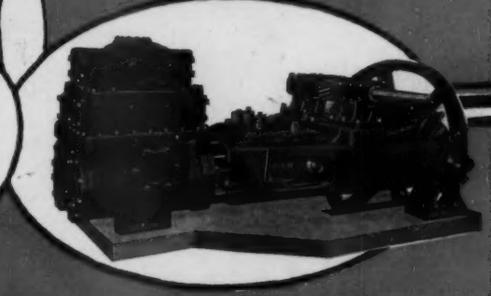

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